NETWORK WORLD
The Newsweekly of User Networking Strategies
Volume 6, Number 16 An IDG Communications Publication April 24, 1989

DEC reports EMA project on schedule

By John Cox
Senior Editor

BOSTON — Digital Equipment Corp. last week said development of its Enterprise Management Architecture (EMA) is on track and users can expect several announcements under the EMA banner during 1989.

A DEC executive acknowledged, however, that the company has postponed general release of technical specifications for the integrated network management architecture. She declined to discuss specific product shipment dates but said development work is on schedule. DEC's partners in the project agreed with that assessment.

EMA, announced last September, is DEC's blueprint for managing processors, applications and communications equipment on a DECnet network. DEC said it will provide a set of core EMA programs — dubbed the Network Control Center (NCC) — as well as an array of management applications and interfaces to third-party equipment and management subsystems.

Seven data communications equipment manufacturers have pledged support for EMA and have been working with DEC for almost a year on the project.

Elaine Hodgdon, a product marketing manager with DEC's

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PHOTO ©1989 SUSAN STEINKAMP

DCA Chairman Bertil Nordin (left) and Microsoft President Jon Shirley chat about the new LAN Manager SNA gateway software.

IBM's Token-Ring Network not just for PCs anymore

Users put LANs to work as backbones linking a variety of processors and other local networks.

By Paul Desmond
Staff Writer

IBM's Token-Ring Network, once used primarily to connect small groups of workstations, is evolving into the high-speed connectivity method of choice for linking all types of processors.

Many users are installing building- and campuswide Token-Ring backbones to replace hard-wired, lower speed links between devices such as cluster controllers and front-end processors.

Besides improving response times, the strategy decreases user dependence on a single mainframe, simplifies the provision of redundant routes to hosts and eases equipment relocation.

One of the best examples of how Token-Rings can support information-processing systems ranging from personal computers to mainframes is IBM's own installation in Research Triangle Park, N.C.

IBM is in the process of installing a three-tiered network of Token-Rings there that will support 10,000 users in 52 buildings, said Randall Campbell, senior telecommunications analyst at IBM.

A single local ring is being installed on each floor of each building to link IBM Personal

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Microsoft, DCA open LAN Manager to SNA

Vendors develop gateway software supporting terminal emulation, peer ties into SNA networks.

By Susan Breidenbach
West Coast Bureau Chief

SANTA CLARA, Calif. — Microsoft Corp. and Digital Communications Associates, Inc. last week announced jointly developed gateway software that integrates OS/2 LAN Manager networks with IBM Systems Network Architecture environments.

The DCA/Microsoft Communications Server software, scheduled for release at the end of the year, runs on an OS/2 LAN Manager server. Release 1.0 will enable DOS and OS/2 workstations on a LAN Manager net to establish a 3270 terminal-emulation or Advanced Program-to-Program Communications session with SNA devices.

Comm Server 1.1, due out in the middle of next year, will add asynchronous communications capabilities and an OS/2 Presentation Manager user interface.

Industry analysts said they were impressed with the scope of the product. Fred Thorlin, associate director of software industry services for Dataquest, Inc., a market research firm in San Jose, Calif., said existing SNA gateway products offered bits and pieces of the Comm Server's capabilities but not all of them.

"I'm sure Novell and IBM will be making similar announcements soon, but Microsoft got there first," Thorlin said. "Suddenly, corporations have a mechanism for linking users to their corporate data bases in a fairly transparent fashion, and they can get it essentially off the shelf."

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The nets behind the broadcasting networks, page 29.

UK bank in two-pronged net effort

By Barton Crockett
Senior Editor

LONDON — Midland Bank plc, one of the UK's largest banks, has launched two major networking initiatives aimed at lowering operating costs and improving profitability.

The first, which began late last year, is a three-year, $1.5 billion project to move computing services out of Midland's nearly 2,000 branches and into 12 regional computing centers. Midland expects the effort to dramatically improve productivity, enabling the bank to eliminate 2,000 of the 4,000 jobs that would otherwise have been created this year, a spokesman said.

Midland has also created a new subsidiary to sell communications services.

In the branch office effort, Midland plans to use its existing

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NETLINE

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LARGEST EVER ISDN DEMO will be the big draw at next week's ICA show. Page 2.

A TOP DREXEL NET EXEC discusses how last week's reorganization will affect the brokerage's network. Page 2.

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NEWSPAPER

FEATURE

Turner Broadcasting net staff thrives on tumult

By Bruce Guptill
Features Writer

INDUSTRY FOCUS

The communications support group at Atlanta-based Turner Broadcasting Systems, Inc. (TBS) is like the fire department at a munitions plant. It's not the fires that cause them so much trouble — it's the explosions.

For the past three years, corporate expansion at the media giant — parent of Cable News Network (CNN), Headline News Network (HNN) and WTBS-TV, as well as the Atlanta Hawks basketball and Braves baseball teams — has been a series of explosions, rather than slow-burning fires.

In that short span of time, the communications staff has had to deal with moving the corporate and news staffs across town, supporting an operation that has more than doubled in size nationwide and developing an

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ICA to host ISDN showcase featuring 60 applications

Forty-two firms join in largest-ever demonstration designed to spur interest in evolving technology.

By Bob Wallace
Senior Editor

DALLAS — Forty-two vendors are expected to demonstrate 60 Integrated Services Digital Network applications at the largest-ever multivendor ISDN showcase at the International Communications Association's (ICA) 42nd Annual Conference and Exposition here next week.

ICA members and project organizers said the landmark event is designed to spark interest in ISDN and enable many of the 2,500 users at the show to view and participate in live ISDN demonstrations.

The ISDN showcase, over eight months in the making, is sponsored by ICA and Southwestern Bell Telephone Co.

One switch adjunct and three ISDN-compliant central office switches — two of which are actually in Southwestern Bell Telephone's network — will provide 215 Basic Rate Interface lines and 16 Primary Rate Interface lines to vendor booths.

ISDN applications to be demonstrated include personal computer-to-personal computer file transfer, local net bridging and incoming call management. "The ISDN showcase is an actual live demonstration of ISDN applications currently available — not proprietary systems with 'brochure compatibility' or vaporware," said Roy Bruce, ICA conference chairman.

Like other recent technology demonstrations — notably the MAP/TOP Users Group's Enterprise Networking Event '88 International — the ISDN demonstration will use a good deal of prototype equipment not yet commercially available, according to Rick King, area manager of advanced technology at Southwestern Bell Telephone.

Analysts and ICA members predict the demonstration will be a success. "To date, ISDN has been more of a vendor push than a market pull," said Victor Krueger, vice-president of telecommunications industry services for Dataquest, Inc., a San Jose, Calif.-based consulting and research firm. "This demo will get users thinking about how they can use ISDN in their companies."

"We felt it was our job to be the catalyst and bring the ISDN marketplace to the [users]," said Norman Sefton, telecommunications director at Duke University. Sefton is chairman of the ICA's

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Drexel net exec discusses impact of reorganization

Network needs to change with sale of retail unit.

By Wayne Eckerson
Staff Writer

NEW YORK — A top network official at Drexel Burnham Lambert, Inc. last week discussed the impact the future sale of Drexel's retail brokerage unit will have on the company's network.

Drexel's top management surprised employees last week by announcing plans to sell the firm's retail brokerage operations and curtail activities in municipal securities, over-the-counter stocks and foreign stock trading.

Recently, Drexel agreed to a settlement of charges brought by the Securities and Exchange Commission and pleaded guilty to six felony counts of securities fraud. The company must pay $650 million in fines and penalties. Drexel will jettison the retail brokerage operations to focus on institutional trading and the sale of high-yield "junk" bonds, analysts said.

Drexel has not announced a buyer for the retail operations, but it could do so as early as this week, a spokesman said.

Gerald Higgins, senior vice-president of data processing and communications at Drexel, said the restructuring will involve the removal of 43 of Drexel's branch offices from the nationwide network. The firm has already appointed a team of network engineers who will work with the buyer to bring the offices onto the buyer's network, Higgins said.

"Some reduction" of staff

The sale will reduce Drexel's total network volume by about 30% and lead to "some reduction" in the company's information systems staff, which currently employs about 700 people, Higgins said.

Allan Grody, who has worked with Drexel in the past, said he believes Drexel may have to reduce its DP staff by as much as 50% once the work of revamping the net is completed. Grody is president of Financial Inter-Group Holdings Ltd., a management consulting firm in New York.

Drexel's Higgins said the cor-

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Briefs

COS leaves its mark. The Corporation for Open Systems International (COS) this week will roll out its long-awaited COS Mark Program, which will certify products that conform to the Open Systems Interconnection standard.

Tomorrow in Washington, D.C., roughly 15 COS members, including representatives from Hewlett-Packard Co., IBM, Motorola, Inc., Retix, Unisys Corp. and Xerox Corp., and users from the federal government, General Motors Corp. and The Boeing Co., are expected to discuss the program's impact.

Intel forges SNA fast path. Intel Corp. plans to announce today a version of its Fastpath communications processor that links IBM Systems Network Architecture hosts via 802.3 Ethernets.

The new Fastpath VTAM-VTAM application kit lets IBM mainframes communicate and share files 14 to 28 times faster over an Ethernet backbone than traditional connections through a front-end processor, Intel said.

SNA traffic is routed from a mainframe over a channel-attached Fastpath unit, which, in turn, is connected to the Ethernet. Data — including NetView commands and responses — shares the Ethernet with other commonly used protocols, such as Digital Equipment Corp.'s DECnet, Transmission Control Protocol/Internet Protocol and Open Systems Interconnection.

Fastpath VTAM-VTAM consists of Intel's SNA Passthrough software, which runs as a VTAM application on MVS mainframes, and two Fastpath control units. The package price is $125,000.

Teleport adds LAN service. Teleport Communications last week introduced a T-2 6.31M bit/sec service to connect local networks in the metropolitan New York area over its fiber-optic net. The service, which is designed to support token-ring local network extenders, will initially support T3 Technologies, Inc.'s TokenGate, a 4M bit/sec token-ring extender.

The T-2 circuits are better suited to bridge local networks — most of which run at 4M to 10M bit/sec — than more commonly used T-1 circuits, according to Teleport Communications. T-1 circuits used for bridging local nets may introduce transmission delays due to data buffering, the carrier said.

Of Prime importance. Prime Computer, Inc. last week announced support for three major communications technologies on its 50 Series minicomputer line.

Prime said it will sell a version of Sun Microsystems, Inc.'s Network File System, which will allow users of its Prime 50 minicomputer line to access files on other minicomputers located over local- and wide-area networks.

Prime will also offer a version of Apollo Computer, Inc.'s Network Computing System, which allows developers to build applications that share networked resources and services. Finally, the company said it will offer Prime/SNA LU 6.2, an implementation of IBM's Advanced Program-to-Program Communications/LU 6.2, which will let 50 Series processors communicate with IBM processors on a peer basis.

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(508) 820-2543

Second-class postage paid at Framingham, MA, and additional mailing offices. *Network World* (USPS 735-730) is published weekly, except for a single combined issue the last two weeks in December by Network World, Inc., 375 Cochituate Road, Box 9171, Framingham, MA 01701-9171.

To apply for a free subscription, complete and sign the qualification card in this issue or write *Network World* at the address below. No subscriptions accepted without complete identification of subscriber's name, job function, company or organization. Based on information supplied, the publisher reserves the right to reject non-qualified requests. Subscriptions: 1-508-620-7760.

Non-qualified subscribers: $3.00 a copy; U.S. — $95 a year; Canada, Central & South America — $110 a year; Europe — $165 a year, all other countries — $245 a year (airmail service). Four weeks notice is required for change of address. Allow six weeks for new subscription service to begin. Please include mailing label appearing on front cover of the publication.

Network World can be purchased on 35mm microfilm through University Microfilm Int., Periodical Entry Dept., 300 Zebb Road, Ann Arbor, Mich. 48106.

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POSTMASTER: Send Change of Address to *Network World*, Box 9172, Framingham, Ma. 01701-9172.

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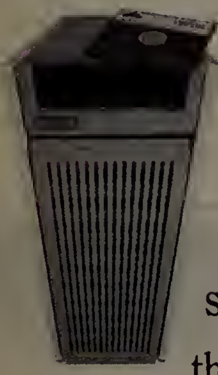

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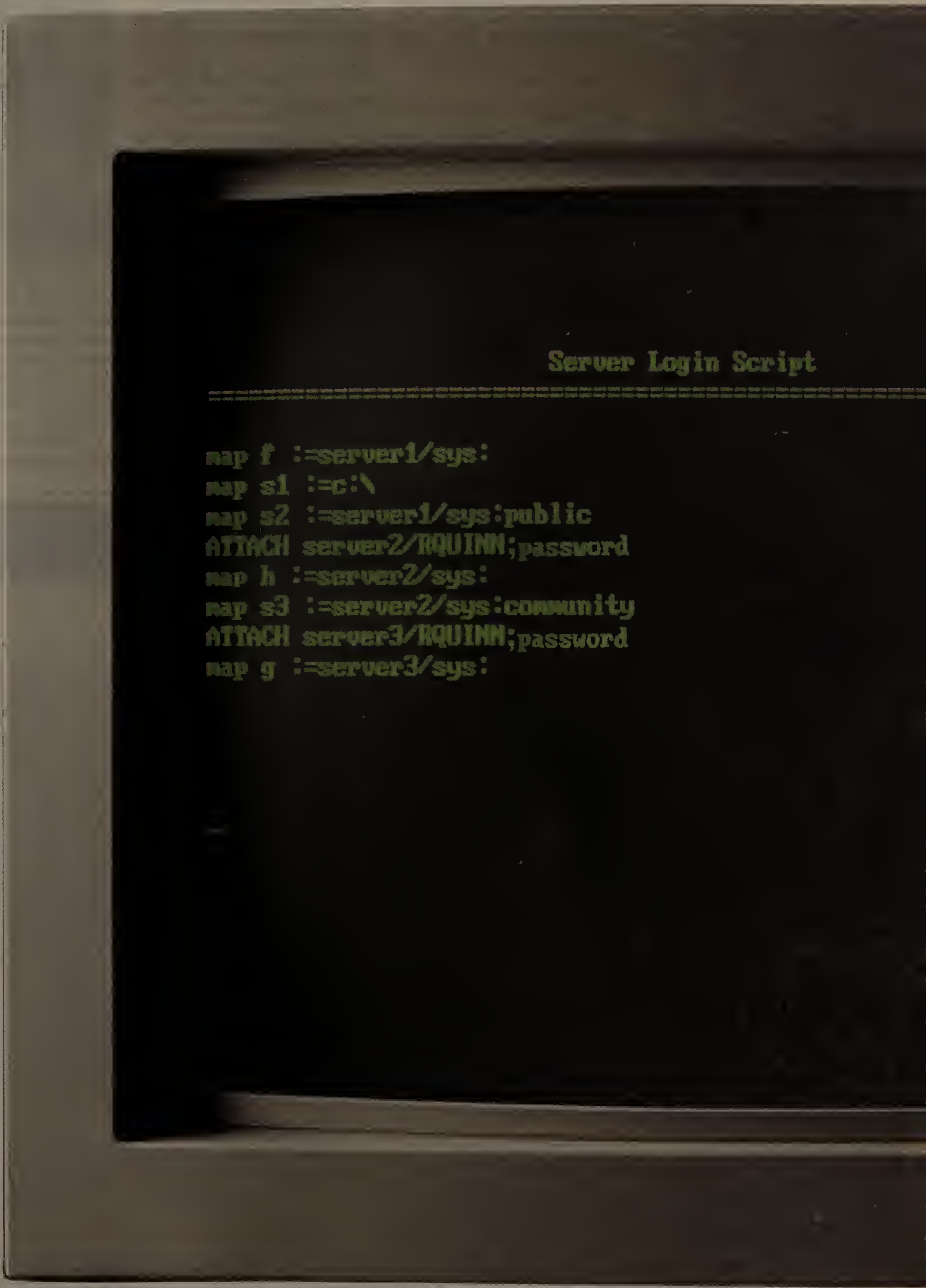

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                    Server Login Script
==================================================

map f :=server1/sys:
map s1 :=c:\
map s2 :=server1/sys:public
ATTACH server2/RQUINN;password
map h :=server2/sys:
map s3 :=server2/sys:community
ATTACH server3/RQUINN;password
map g :=server3/sys:
```

BANYAN Networks for those who think big.

RBHCs prepare for plunge into EDI, E-mail markets

By Barton Crockett
Senior Editor

The regional Bell holding companies are gearing up to introduce their first electronic messaging services, including electronic data interchange offerings, later this year.

Bell Atlantic Corp. introduced its electronic mail service earlier this month. The service is currently limited to Philadelphia, but the carrier plans to offer a similar service in Washington, D.C. later this year. Three other RBHCs plan to offer E-mail services this year, and two RBHCs plan to begin providing EDI services (see chart).

The RBHCs were given permission to offer electronic messaging and other information services in a March 1988 ruling by U.S. District Court Judge Harold Greene.

While the RBHCs must overcome a number of obstacles to success, they could greatly increase the reach of existing public messaging and EDI systems, according to industry analysts. The companies are targeting their offerings at residential customers as well as small and midsize businesses, which means they could bring a new class of users into the public E-mail and EDI markets.

"The national carriers haven't really done a good job of selling or pricing their services for this market," said Walter Ulrich, a partner in the Houston office of Coopers & Lybrand, a consulting and accounting firm.

"If the Bells can bring these people in, it would be a boon to everyone," he said.

Some limits

Because the RBHCs cannot transmit traffic between local access and transport areas, they must team with other carriers to provide inter-LATA messaging services. For instance, Bell Atlantic, which is reselling Telenet Communications Corp.'s Telemail E-mail service under its own name, is negotiating to link the service with national carriers.

"We have to give users their choice of [interexchange] carriers, just like with long-distance service," a company spokesman said.

The RBHCs will use a variety of approaches in selling EDI and messaging services. Some carriers, such as Bell Atlantic and BellSouth Corp., plan to resell existing services under their own names. Other carriers, such as Pacific Telesis Group and Nynex Corp., plan to offer their own X.400-based messaging services.

Nynex, which calls its offering Electronic Message Interchange Service, will interconnect users' E-mail networks in different locations via a Nynex-provided X.400 gateway. Users will access the gateway over dedicated lines.

In addition to offering an X.400 messaging service, Pacific Telesis plans to offer X.400-based EDI transmission services beginning next year, according to Jeanne Bracken, director of message-handling systems at Pacific Telesis' Pacific Bell subsidiary.

In addition to its E-mail offering, Bell Atlantic is awaiting FCC approval of an EDI translation service that will convert users' EDI messages from one format, such as ANSI X12, to another, such as EDI For Administration, Commerce and Transport (EDIFACT).

Success unclear

According to industry analysts, it is not clear how successful the RBHCs will be with their offerings. The RBHCs have several obstacles to overcome, they said. Some lawyers and RBHC officials believe the carriers will be required to install message-handling equipment in each LATA where service is offered. RBHC executives said this restriction would make it difficult to offer a cost-effective service.

"There's not always enough traffic within a LATA to make it cost-effective to put a processor there," said Pacific Bell's Bracken. "Current carriers don't have this restriction. This gives them an edge."

The RBHCs also cannot offer 800 numbers for users to dial in and receive messages from outside the LATA, a feature offered by current E-mail and EDI service providers.

Probably the biggest obstacle, however, is that the RBHCs are entering a highly competitive, low-margin business.

"This is a hard business to make a profit in, and the Bells will have to work hard to succeed," said Victor Wheatman, manager of EDI planning services at the Mountain View, Calif.-based market research firm Input, Inc.

Only two EDI service providers in the U.S. made a profit last year, Wheatman said. ◼

The Bells venture into electronic messaging

Sampling of RBHC EDI and E-mail messaging services

RBHC	Services	Expected availability
Bell Atlantic Corp.	Resells Telenet Communications Corp. Telemail under its own name through information gateway in Philadelphia; plans EDI translation and transmission service	EDI in late 1989
BellSouth Corp.	Will resell existing E-mail service under its own name	Late 1989
Nynex Corp.	Plans Electronic Message Interchange Service to connect E-mail nets via X.400 gateways and to provide X.400 mailboxes for messaging	Late 1989
Pacific Telesis Group	Plans X.400 E-mail and EDI service	E-mail in late 1989; EDI in 1990

Vitalink to unveil bridge for token-ring local nets

Supports four 64K bit/sec links to remote nets.

By Laura DiDio
Senior Editor

FREMONT, Calif. — Vitalink Communications Corp. is expected to announce here today a token-ring local network bridge that can support four links to remote networks at speeds up to 64K bit/sec.

The TransRING 530, which contains a standard token-ring interface for attachment directly to a token-ring media access unit (MAU), can support all commonly used transmission services up to 64K bit/sec, including digital data services, switched 56K bit/sec digital data services and analog leased lines.

It can also be connected to a 64K bit/sec port on a T-1 multiplexer and supports V.35, RS-449 and RS-232 physical interfaces.

The TransRING 530 complements the company's line of remote token-ring bridges, according to Tony Moraros, Vitalink's token-ring product manager.

"The TransRING 530 is targeted at midsize corporate users that need to access or transfer data but don't require T-1 support, which is offered on our high-end token-ring bridge," Moraros said.

Mid-range alternative

Priced at $15,750, the TransRING 530 is a good alternative for mid-range users that perform large batch transfers but cannot afford to spend $25,000 for the TransRING 550, Moraros said.

The TransRING 550 token-ring bridge, introduced last year, is aimed at large corporate users that need to do high-volume data transfers in real time, Moraros said.

The TransRING 550 lets users connect as many as eight remote 4M bit/sec token-ring local nets at 1.544M bit/sec T-1 speeds.

The TransRING 530 offers all of the features of the 550 except the speed and the ability to support eight connections. The TransRING 530 can support redundant links to two remote token rings or a link to as many as four different remote token-ring nets.

Both TransRING bridge products have a "class of service" feature that enables network managers to prioritize data traffic.

The bridge can be configured so that interactive routine data traffic such as electronic mail or small print job requests can take precedence over jobs such as high-volume batch transfers.

"Without this capability, a high-volume batch transfer, for instance, could bog down the interactive network traffic, resulting in slower response time," Moraros said.

The TransRING 530 is capable of learning the topology of a wide-area network in order to determine the best data transmission path. This is especially important for users that link networks at several remote sites.

> "The TransRING 530 is targeted at midsize corporate users that need to access or transfer data but don't require T-1 support, which is offered on our high-end token-ring bridge," Moraros said.
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For example, a user with a token-ring bridge in San Francisco that is transferring data to offices in both Boston and New York needs only a single link to either city. Once there, the data can be routed through a bridge to the final destination.

Southern Companies Services, Inc. in Birmingham, Ala., which provides engineering, planning and consulting services to utility companies, plans to use the TransRING 530. Southern Companies, which currently runs a TransRING 550, has both Ethernet and token-ring nets at its offices here and in Atlanta, according to Bob Parker, the company's telecommunications network engineer.

Parker said Southern Companies may use the TransRING 530 to establish temporary links for special projects or meetings. "For instance, if we're doing a month-long consulting job for a utility company at a remote location, we could install the TransRING 530 for slower speed communications than T-1 lines," he said.

"The fact that the TransRING bridges can map the most cost-effective and shortest route for the data to reach its destination helps us to conserve our bandwidth," Parker said. "It also gives us a redundant link for least-cost transmissions and ensures that if our primary data paths fail, we'll still be able to route traffic through the secondary path."

Ethernet-to-token ring

The company is also using the TransRING 550 in conjunction with its TransLAN Ethernet bridges for multiplexing data packets to allow both token-ring and Ethernet data packets to share the same data transmission line, Parker said.

Users with both TransLAN and TransRING bridges can be connected via serial links to enable the token-ring and Ethernet data packets to be transmitted over the same line.

"By piggybacking Ethernet data traffic on the same transmission line as the token-ring data, we save the time and expense of setting up two parallel nets," Parker said.

The TransRING 530's price includes all necessary software.

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AT&T posts healthy 20% increase in 1Q earnings

Chairman, CEO Allen expects continued growth.

By Jim Brown
New Products Editor

NEW YORK — AT&T last week reported a 20.6% increase in first-quarter earnings, and Chairman and Chief Executive Officer Robert Allen said he "wouldn't be surprised" if the carrier's growth continues at that pace for the rest of the year.

AT&T's first-quarter earnings increased to $594 million, up from $492 million for the first quarter of 1988. Revenue for the first quarter rose to $8.66 billion, up 3.2% from $8.39 billion last year.

The carrier's major rivals, MCI Communications Corp. and US Sprint Communications Co., also posted healthy increases in first-quarter results last week (see "US Sprint reports a profit; MCI posts strong quarter," page 7).

Speaking at the company's annual meeting here last week, Allen declined to forecast earnings but said he is optimistic about the rest of the year because of the "new vigor" in AT&T's long-distance business and international sales of products and services.

AT&T's long-distance service revenue for the first quarter, minus access charges, increased 5.9%, to $5.30 billion from $5.01 billion in the first quarter of 1988. AT&T does not break out revenue for international sales.

"Although we made solid gains from a year ago," Allen said, "let there be no question that we are aiming toward a higher level of performance and profitability."

Aggressive advertising and sales promotions for long-distance services, the transfer of 2,000 staff employees to sales positions last year and greater regulatory flexibility are paying off for the company in increased profits and revenue, Allen said.

Growing user acceptance of AT&T's Unix computer operating system also helped the company's bottom line, he said.

AT&T's computer and communications equipment sales rose 4.5% to $2.69 billion in the first quarter, compared with $2.57 billion in the first quarter of 1988. This is due in part to AT&T's recent acquisition of data communications company Paradyne Corp., whose results were included with AT&T's for the first time.

> Growing acceptance of AT&T's Unix also helped the company's bottom line, Allen said.
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A recently announced organizational restructuring, under which AT&T is aligning itself into a number of smaller, more focused business units ("AT&T announces major corporate restructuring," *NW*, March 13), is expected to help the company become even more efficient and profitable, Allen said.

"AT&T intends to be a winner," Allen said. "But to be a winner in the aggregate, one must be a winner in the piece parts — market by market."

David Boczar, assistant vice-president and analyst at New Japan Securities International, Inc. in New York, said AT&T's improved earnings show that the company's cost-cutting efforts are paying off.

"Allen has done a good job," Boczar said. "He's been very conscious of expenses, and he's attempted to show progress at the bottom line."

Joseph Battipaglia, associate director of research at Gruntal & Co., a New York-based investment firm, said cost cutting is particularly important in light of the Federal Communications Commission's plan to cap AT&T's prices, rather than its profits, which is scheduled to take effect on July 1.

But AT&T will also have to be prepared to beat its rivals on other fronts, he said.

"AT&T still has to wring out some costs, modernize [its network], bid aggressively for business and protect the share of market it has," Battipaglia said. "US Sprint, MCI and other independents are grabbing market share by advertising aggressively and going that extra mile. It's a good time for these companies overall."

Allen told shareholders that AT&T will try to best its rivals by sticking to the principle of "customer, customer, customer."

McDonnell Douglas airs new switch

By John Cox
Senior Editor

SAN JOSE, Calif. — McDonnell Douglas Network Systems Co. last week announced a mid-range packet switch that costs about 40% less than the company's existing mid-range switch.

The lower price of the new Compact XL means users can expand an existing packet network or create a new one more cheaply than was possible before, said company officials. McDonnell Douglas operates the Tymnet public network and offers a line of private data net products under the Tymnet label.

The Compact XL offers about the same port capacity as the more expensive Mini-Engine XL, introduced about a year ago, according to Jefferey Zanardi, manager of product marketing for McDonnell Douglas Network Systems, based here.

The Mini-Engine XL was designed to compete in price with low-end switches and packet assembler/disassembler products, but it offers the performance, network management capabilities and multiple protocol support associated with a mid-range switch, Zanardi said.

The company was able to create the low-priced switch by employing very large-scale integration (VLSI) technology. With VLSI, the company packed components from two Serial Input Output (SIO) circuit boards and several associated half-height daughter boards onto one board, the SIO II, Zanardi said.

The Compact XL, which is expected to be available for customer installation in August, has a 32-bit processor and 1M byte of random-access memory.

Zanardi said that the product's packet throughput varies widely depending on the applications. The switch, which supports most commonly used protocols, comes in two models: the Compact XL model has one processing board, one memory access controller, one SIO II board and five expansion slots; and the Dual Compact XL has two each of the same boards for increased performance but just two expansion slots. In both models, the slots accept a mix of asynchronous, synchronous or SIO II boards.

The Compact XL model can be configured to offer as many as 128 asynchronous ports at speeds up to 4.8K bit/sec, 32 synchronous ports at speeds up to 19.2K bit/sec or 32 additional SIO ports.

Each SIO II board offers eight ports in the following configuration: two V.24 asynchronous ports at speeds up to 9.6K bit/sec, four V.24 synchronous ports at up to 19.2K bit/sec, and a choice of either two V.35 synchronous ports at up to 76K bit/sec or two optical coupled link ports up to 162.5K bit/sec.

The Dual Compact XL model can support two asynchronous boards with as many as 64 ports, two synchronous boards with up to 32 ports or four SIO II boards with as many as 32 ports.

Four XLs of either model can be stacked atop one another in a cabinet. The XL can operate in the same net with other Tymnet switches.

The price per port for asynchronous links into the Compact XL ranges from $232 to $612; for synchronous ports, the range is $672 to $1,020. Per-port prices for the Dual Compact XL range from $583 to $990 for asynchronous and from $1,050 to $1,650 for synchronous.

Total switch prices vary greatly, depending on configuration. For the Compact XL, prices can range from about $30,000 to $48,000 for a fully configured switch with all options. Pricing of the Dual Compact XL ranges from about $45,000 to $60,000.

DEC reports EMA on schedule

continued from page 1

Littleton, Mass.-based Networks and Communications Marketing group, acknowledged that DEC has postponed release of the technical specifications for EMA, called the System Reference Manual (SRM). The release, originally scheduled for this month, was delayed so that DEC could incorporate modifications suggested by its EMA partners.

Hodgdon, who talked with *Network World* here last week during a briefing on EMA's status, said the postponement will not delay EMA software development efforts. "To the best of my knowledge, it didn't affect [the vendors'] development schedules," she said. "Nor did it affect DEC's development efforts."

DEC's partners agreed that the EMA undertaking is on track.

"It's right where I expected it to be," said Stephen Mank, marketing director, network management for Codex Corp. in Mansfield, Mass.

"The initial [EMA] program was the SRM, which went fairly close to schedule," said David Owen, director of product marketing at StrataCom, Inc. in Campbell, Calif.

Owen said StrataCom has already begun development work on an access module, a software interface that will let its T-1 multiplexers exchange information with EMA's NCC. The code is scheduled to be ready around the end of the year, he said.

The EMA partners received initial drafts of the SRM in mid-1988, and some began development work or test implementations almost immediately. Mank said Codex has completed work on its access module, which will tie its Series 9800 net management system into the NCC.

All seven vendors met with DEC earlier this month at the company's Littleton facility. Participants discussed both outstanding technical issues and marketing questions, and witnessed a demonstration of sample EMA products, according to Tim Lee-Thorp, product manager for network management at Vitalink Communications Corp., a Fremont, Calif.-based manufacturer of data link layer bridges.

He declined to go into details but said the meeting hit the right note for the vendors.

Also for the first time, DEC officials distributed a schedule of upcoming EMA product announcements. Still unclear, according to Owen, is the precise set of features and functions those products will support. DEC is keeping that schedule under wraps.

Some outside observers said postponing the SRM shows DEC has fallen behind on its development schedule. But Hodgdon said the April date was an internal target, not a firm goal. Postponement was justified to incorporate comments and suggestions from the EMA partners, she said.

Hodgdon said DEC is working on integrating a half-dozen existing DECnet management products into the EMA scheme, providing a migration path for users of those products. Those products include Terminal Server Manager, which will interface to EMA through an access module, and EtherNIM, a configuration management tool that will be incorporated in the NCC as one of an array of function modules.

Westinghouse offers net consulting

By Anita Taff
Washington Bureau Chief

WASHINGTON, D.C. — Westinghouse Electric Corp. announced here last week the commercial availability of network consulting and transmission services offered through a division it launched last year.

Westinghouse Electric announced the formation of Westinghouse Communications in April last year and has been building its technical and sales staff, and acquiring companies to expand its communications offerings ever since.

The unit, which has 300 employees, will design networks, recommend equipment, oversee procurements, install equipment and provide network management services.

Westinghouse Communications has been reselling excess capacity on Westinghouse Electric's internal network to customers on a limited basis during the last year and already serves several outside companies.

Harlan Rosenzweig, president of Westinghouse Communications, said the division will concentrate on developing order-entry systems based on multivendor products and customized network applications, such as one for remote monitoring of equipment. "We're not going to be in the business of selling commod-

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INDUSTRY UPDATE

VENDOR STRATEGIES, MARKET TRENDS AND FINANCIALS

Worth Noting

> "Watch out Sun and [DEC]. This will be a class act."
>
> **Geoff Woollacott**
> Program director for competitive analysis
> TFS, Inc.
> Westford, Mass.
> On Hewlett-Packard Co.'s planned acquisition of Apollo Computer, Inc.

People & Positions

Maynard, Mass.-based **Digital Equipment Corp.** last week announced the appointment of **Martin Hoffmann** to the position of vice-president and general counsel.

Hoffmann will assume responsibility for the legal functions of the company in his new position.

Previously, Hoffmann was a managing partner of the Washington, D.C. office of the law firm Gardner, Carton & Douglas.

J. Morris Weinberg, chairman of the board and founder of **Fibronics International, Inc.**, said last week he will not stand for reelection as a director of the company at the shareholders' meeting in May.

Weinberg will stay on with Fibronics, a local network company, as a consultant for one year.

Weinberg is also president and chief executive officer of start-up Sorex, Inc., a video technology company.

Gerald Riso was recently named president of the **Information Technology Requirements Council**, the group that oversees the **North American MAP/TOP Users Group**.

Since February 1987, Riso served in the Reagan administration as the nation's first associate director for management and chief financial officer within the Office of Management and Budget.

In that official capacity, Riso was responsible for implementing governmentwide improvements in financial management, productivity and quality. ◻

What's driving the systems integration market?

Market forces

- Users need to network an increasing number and variety of devices.
- Users are expanding the automation of their businesses far beyond back-office applications.
- Users are positioning their networks to gain a competitive advantage.
- Lack of in-house skills or resources on part of users.
- Government procurements call for multivendor systems.

Vendor success factors

- Ability to manage projects by marshaling resources, meeting deadlines and avoiding disasters.
- Competency in engineering, software development and communications.
- Track record with similar projects.
- Understanding what the customer wants.
- Ability to assume risk, such as through fixed-price bids.

GRAPHIC BY SUSAN J. CHAMPENY SOURCE: TFS, INC., WESTFORD, MASS.

US Sprint reports a profit; MCI posts strong quarter

US Sprint records its first quarterly earnings.

By Bob Brown
Senior Writer

KANSAS CITY, Mo. — US Sprint Communications Co. last week posted its first profitable quarter, and rival MCI Communications Corp. said its first-quarter earnings more than doubled compared with its first quarter in 1988.

US Sprint's strong performance helped parent company United Telecommunications, Inc. more than double its first-quarter earnings from the year earlier.

US Sprint, the nation's third largest long-distance carrier, reported earnings of $27.5 million for the first quarter, ended March 31, a dramatic turnaround from the loss of $124 million it posted in the first three months of 1988. The carrier reported first-quarter revenue of $983.9 million, up 30% from revenue of $759.5 million reported for the first quarter of 1988.

> "Clearly, US Sprint has turned the corner," said United Telecom's William Esrey.
>
> ▲▲▲

This marks the first time the carrier has shown a quarterly profit. US Sprint would have posted a $14 million profit for the final quarter of 1988 but instead reported an operating loss of $181 million due to a $195 million write-down in the value of analog network facilities.

For its part, MCI reported first-quarter earnings of $128 million, up 121% from earnings of $58 million for the first quarter of 1988. MCI's revenue jumped 33% in the first quarter, to $1.5 billion, compared with $1.13 billion for the first quarter last year.

US Sprint

A spokesman for United Telecom said US Sprint's growth cannot be attributed to any particular segment of its business but is generally the result of the company becoming more experienced. The company continued to win major contracts with large users, including Sears, Roebuck & Co., Automatic Data Processing, Inc. and Zenith Electronics Corp.

Thanks in part to US Sprint's improved performance, United Telecom's earnings jumped 122% in the first quarter, to $76.4 million from $34.4 million in the first quarter of 1988. United Telecom's revenue increased to $1.77 billion for the first quarter, up 18% from $1.5 billion reported during the first quarter of 1988.

"United Telecom enjoyed strong across-the-board performance by all its units, with US Sprint now stepping solidly into the profit column," said William Esrey, president of United Telecom and US Sprint. "Clearly, US Sprint has turned the corner."

Esrey said US Sprint has significant growth opportunities in the international market, the public pay phone market and its 40% share of the federal government's Federal Telecommunications System (FTS) 2000 contract. The company has also strengthened its position in the 800 and private-line markets, as well as in the 900 and operator services markets, he said.

Esrey said US Sprint's March agreement to buy a 50% stake in the Private TransAtlantic Telecommunications (PTAT) cable project and to initiate a joint mar-

(continued on page 8)

Alcatel still seeking niche in U.S. market

The European giant is still striving to establish itself as a major player in U.S. network market.

By Gail Runnoe
Washington Correspondent

HICKORY, N.C. — Two years after entering the U.S. telecommunications market, European giant Alcatel N.V. is still struggling to establish itself as a major player.

Formed in January 1987 from the merger of ITT Corp.'s telecommunications equipment operations and France's Compagnie Generale d'Electricite (CGE), Brussels-based Alcatel N.V. is Europe's second largest telecommunications equipment manufacturer.

In April 1987, the company established two U.S. divisions: Alcatel N.A., which sold central office switches and other transmission equipment to telephone companies, and Alcatel Business Systems, Inc., which marketed computers and telecommunications equipment, including private branch exchanges, to users.

The company has since trimmed its U.S. operations to one unit, Alcatel N.A. It dropped its computer products to focus on its core business — telecommunications products.

Company officials say Alcatel is stronger now and is ready to grab a larger share of the U.S. market. But analysts say the company's reorganization isn't over yet and important marketing problems remain to be addressed.

Alcatel N.A. began to take shape earlier this year when Alcatel N.V. sold off two Alcatel Business Systems companies, Alcatel Information Systems, Inc. and Qume Corp., both of which sold computer products. Alcatel's management refused to say if the divested businesses were losing money but did say they were not "a runaway success."

Alcatel Business Systems was then dissolved, and its two remaining companies, Corinth Telecommunications Corp. (or Cortelco) and Alcatel PABX Systems Corp., were merged under Alcatel N.A.

Consolidation continued when Alcatel PABX Systems was folded into Cortelco last month and the PBX operations were relocated to Cortelco's Corinth, Miss., headquarters. Steve Frye, president of Cortelco, said the move was made to cut costs and increase efficiency.

Alcatel N.A. now consists of three companies: Alcatel Network Systems, which sells central office switches, multiplexers and transmission equipment for pub-

(continued on page 8)

INDUSTRY BRIEFS

Octel Communications Corp. last week reported earnings of $3.02 million for the third quarter, ended March 31, a 32% increase over earnings of $2.28 million for the corresponding quarter last year.

Disregarding an extraordinary tax credit of $584,000 included in the 1988 third-quarter results, income for the third quarter this year grew 78%, according to the Milpitas, Calif.-based voice-processing equipment maker.

Octel reported third-quarter revenue of $22.86 million, up 76% compared to the $13 million reported for the third quarter of fiscal 1988.

The company said the 1989 third quarter was its 14th consecutive profitable quarter.

Prodigy Services Co., a joint venture of **IBM** and **Sears, Roebuck & Co.**, last week announced it is launching videotex services in the metropolitan New York area.

In what Prodigy termed a milestone in its national rollout, more than 700,000 New York area residents with IBM or compatible personal computers in their homes will be able to access a broad range of on-line information services, including home shopping and banking, for a flat charge of less than $10 a month.

Prodigy, based in White Plains, N.Y., has already introduced its services in Atlanta, Baltimore, Boston, Detroit, Los Angeles, Philadelphia, San Francisco and other areas. ◻

Alcatel still seeking niche in U.S. market

continued from page 7

lic, private and hybrid networks; Alcatel Cable Systems, which sells fiber and copper cable, multiplexers and couplers to telephone companies; and Cortelco, which sells PBXs, telephones and key systems to users.

"We are clear on our core business now," said Bart Bielawski, president of Alcatel N.A.'s Technology and Business Development unit.

"We have completed the consolidation phase and are on the verge of becoming a major player," he said.

According to Bielawski, more than two-thirds of Alcatel N.A.'s revenue currently comes from the sale of transmission equipment, such as cable from Alcatel Cable Systems as well as trunk carriers and the 300 and 1218 Digital Loop Carrier Systems manufactured by Alcatel Network Systems.

The remaining revenue comes from the sale of Cortelco products, including the System 3100 PBX; the Citation, Tribute and Trendline telephones; and the Aries Electronic Key Systems and the Electronic Communications Systems.

Sales to telephone companies account for 75% of U.S. sales, Bielawski added, while sales to users and OEMs make up about 25%. Alcatel N.A. expects sales of about $600 million this year.

Bielawski said he believes that a larger share of Alcatel N.A.'s future revenue will come from end user-oriented, private and hybrid network products.

SONET products

The company's new line of Synchronous Optical Network (SONET)-compliant multiplexers and transmission equipment, scheduled to begin shipping next month, will be particularly important in achieving this revenue goal, he said.

SONET is a high-speed, fiber-optic transmission protocol. "We believe SONET products will put us in a leadership position," Bielawski said. "They will put us on the leading edge of technology."

Frye said Cortelco also plans to market a digital PBX — the Alcatel 1 — in the U.S. in addition to its existing System 3100, a fully digital switch with analog phone sets. Alcatel 1 will be a U.S. version of Alcatel N.V.'s Opus 300, which is now marketed in France. Introduction of the Alcatel 1 has been delayed, he said, to allow the company to bring the PBX into line with U.S. standards.

Although Alcatel N.A. claims its consolidation is over, some industry analysts say the firm is still in a period of retrenchment and its U.S. strategy is unclear.

Francis McInerney, an analyst at Northern Business Information/Datapro, a New York-based market research firm, said he believes Alcatel N.A. is still "reorganizing and pooling its assets."

He said Alcatel N.A. inherited a number of products with relatively small market shares from ITT's telecommunications operations and that it is still "trying to figure out what's worth keeping and what's not."

Alcatel N.A. has also failed to effectively integrate the different product lines it inherited from ITT and Alcatel N.V., McInerney said.

"Their products tend to compete with one another in too many markets," he added.

Greg Carlsted, director of telecommunications industry services at Dataquest, Inc., a San Jose, Calif.-based market research firm, said Alcatel N.A. may have to trim U.S. operations even further.

He said it might be wise for the firm to pull out of the U.S. PBX market, which is "extremely competitive yet also flat." The U.S. PBX market is mainly "a replacement market," he said, adding that Alcatel will have difficulty carving itself a niche because of its relatively low U.S. name recognition.

McInerney agreed. He said U.S. PBX users look for a large installed base and a major service infrastructure.

Because Alcatel N.A. lacks these essential elements, he said, the company would be better off selling its PBX operations and concentrating on other product areas.

Alcatel N.A. ranks 16th among U.S. PBX suppliers, with a market share of less than 0.5%, according to McInerney.

Carlsted suggested that Alcatel N.A. might be able to strengthen its market presence by forming joint ventures or alliances with more established firms. Cortelco's Frye said that while the company has considered that possibility, "at this time, there's nothing on the table."

US Sprint, MCI post strong quarters

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keting agreement with London-based Cable & Wireless PLC will be key factors in the company's effort to provide international services, including Integrated Services Digital Network offerings.

MCI improvements

MCI also bolstered its competitive status by reporting record earnings and revenue for the first quarter, ended March 31, analysts said. MCI's banner quarter was boosted by a number of multimillion-dollar contracts involving development of data networks for large users including Cray Research, Inc., Chrysler Corp. and Northwestern Mutual Life Insurance Co.

With the recent addition of a full line of operator services and entry into the $2.2 billion public pay phone market, MCI said it bolstered its ability to compete across market segments.

David Boczar, assistant vice-president and analyst at New Japan Securities International, Inc. in New York, said MCI's performance was driven by growth in business and international markets.

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TELECOMMUNICATIONS

CARRIER SERVICES, CENTREX, CPE, WIRING SYSTEMS AND BYPASS

Worth Noting

Just one year after the product was announced, Northern Telecom, Inc. said it has installed 17,000 Meridian Norstar key telephone systems.

Carrier Watch

US Sprint Communications Co. last week announced a 4.1% rate reduction for its Dial 1 service and introduced a new optional calling plan targeted at small businesses. The new rates and calling plan are scheduled to take effect May 1.

Also, US Sprint said it plans to cut rates for all other business services, including its Virtual Private Network, 800 and WATS offerings. The carrier would not say how much rates for these services would be cut or when the price reductions will take effect.

The price cuts for Dial 1 service average 4.1% for calls placed during the day and 3.6% for night and weekend calls. US Sprint said these cuts will keep its services up to 25% less expensive than comparable AT&T offerings.

Under the new Dial 1 calling plan, users must guarantee $15 of usage a month. The user qualifies for a volume discount after racking up $25 of usage. The discount is applied to total service usage.

South Central Bell Telephone Co. last week launched an internal Integrated Services Digital Network pilot project aimed at developing ISDN applications to market to its customers.

The test involves BellSouth Services, Inc. employees at the company's new headquarters building in Birmingham, Ala. BellSouth Services provides staff and planning functions for South Central Bell.

Up to four other South Central Bell locations in the city will be able to access the ISDN central office equipped with an AT&T 5ESS switch, which will provide Basic Rate Interface lines for the test. ◼

Custom net deals fuel price demands

Advent of special rate packages drives more users to pressure carriers for big discounts.

By Anita Taff
Washington Bureau Chief

WASHINGTON, D.C. — As competition between the major long-distance carriers intensifies and the use of custom net deals increases, customers should be pushing for long-distance prices below an average of 20 cents a minute, say users and analysts.

Through custom network arrangements, a small group of the nation's largest users have been able to lock in long-haul prices ranging from 13 to 18 cents per minute. The federal government, through its Federal Telecommunications System (FTS) 2000 contract, has succeeded in winning even lower rates.

With an eye on those custom network contracts, other users will be pressing carriers for lower rates, according to analysts.

"As more people push carriers to be their exclusive provider, there is a good chance of a price war breaking out," said Ron Brown, a New York-based independent consultant, formerly with Coopers & Lybrand.

Although building a private network has traditionally been seen as a way to lower telecommunications costs, large users are questioning the wisdom of that strategy and examining custom networks as a way to lower costs, said Kenneth Phillips, chairman of the Committee of Corporate Telecommunications Users (CCTU), a group of 30 of the country's largest users.

Private networks can yield reduced telecommunications rates if built and administered properly. However, private network users incur costs for staff, equipment and other necessities that can diminish the price advantages of their networks, he said.

In today's intensely competitive long-distance market, some users can strike deals that involve discounted service prices as well as the use of a carrier's network facilities. Users can also arrange for comprehensive network management services, even special switching arrangements.

As a result, Phillips said, many customers may begin looking to carriers rather than private networks for the best network deals.

Users and analysts said that with the biggest users striking special discounted deals, others

(continued on page 10)

WASHINGTON UPDATE

BY ANITA TAFF

MCI accuses AT&T of understating the case. MCI Telecommunications Corp. recently asked the Federal Communications Commission to reject AT&T's Tariff 16 filing for the Federal Telecommunications System (FTS) 2000 contract because AT&T is planning to charge the government only 5 cents per minute for switched voice service — a price MCI claims is far below the cost of providing FTS 2000 services.

Although AT&T's tariff indicates that FTS 2000 prices would cover all costs and generate profits of $26.6 million during a representative year, MCI disputed those figures, saying, "AT&T has grossly understated its costs of providing service."

For example, MCI said AT&T has not listed any costs for the use of existing facilities that will be devoted exclusively to FTS 2000 services nor has it included any costs for billing and collection services. AT&T may also have underestimated the cost of preparing its FTS 2000 bid by as much as $48 million dollars, MCI said. AT&T also incorrectly listed the price it will pay for local access by almost half a cent per minute, MCI said.

Martin Marietta Corp., MCI's partner in its losing bid for FTS 2000, also protested the Tariff 16 filing on three main points. Martin Marietta said the AT&T offering is priced below cost, is discriminatory because it prevents other carriers from buying services to resell and failed to disclose some contractual information that affects the service price. An AT&T spokeswoman denied the charge that the FTS 2000 service is priced below cost but declined to comment about the other claims. AT&T will make a formal response to the FCC this week, she said. ◼

Virtual net service update

Carrier	Status
Nynex Corp.	
New York Telephone Co.	V Path service available now
New England Telephone and Telegraph Co.	Massachusetts Department of Public Utilities rejects tariff
BellSouth Corp.	
Southern Bell Telephone and Telegraph Co.	Under development
South Central Bell Telephone Co.	Under development
Ameritech	In planning stages
Southwestern Bell Corp.	Conducting market research
Bell Atlantic Corp.	No present plans
Pacific Bell	Planning to integrate electronic tandem nets with long-haul carriers' virtual net services

BOCs set sights on virtual private network offerings

N.Y. Telephone first to provide virtual net service.

By Sarah Vandershaf
West Coast Correspondent

NEW YORK — The Bell operating companies are on the road to developing intra-LATA virtual private network services, but so far only Nynex Corp.'s New York Telephone Co. offers such a service.

Virtual private network services offer users the advantages of a private network, such as a uniform dialing plan, but are provided over public network facilities. Special software at the switching facility handles routing of traffic between user sites. Virtual private network service can be used to provide links between private nets and small sites, such as those with traffic volume too low to justify dedicated lines.

The three major long-distance carriers — AT&T, MCI Communications Corp. and US Sprint Communications Co. — offer virtual private network services, and the BOCs say they will eventually follow suit.

New York Telephone is the first of the BOCs to offer such a service. Introduced in September 1988, New York Telephone's V Path service is an alternative to the company's distance-sensitive regional calling plan, said Don Malandro, product manager for virtual network services. V Path can also be used in place of dedicated lines to access the virtual private net services of the long-haul carriers.

Since V Path is distance-insensitive, Malandro said, "it's really strong for multilocation customers spread across a geographic area." The service can be used to supplement a private net, he said.

New York Telephone is trying to modify the pricing structure for its virtual private net service to attract users with a larger number of nodes. Currently, New York Telephone's service establishment charge is $20,000, plus $950 for each node, said Randy Parrish, the carrier's product manager for virtual net services.

Parrish said that the average New York Telephone customer has at least 10 nodes. The company wants to change its service establishment fee to $29,500, with no additional charge for nodes, so that it is to the customer's advantage to come in with more than 10 nodes, he said.

New England Telephone and Telegraph Co., another Nynex company, tried to offer a virtual private net service, also called V Path, but it was rejected last July by the Massachusetts Department of Public Utilities (DPU) because of concerns over the way the service would be priced.

V Path can be used in place of dedicated lines to access virtual private net services.

▲▲▲

The DPU rejected the tariff, saying that a so-called feature-based payment option would allow New England Telephone to charge V Path users lower access and usage fees than it would charge the long-haul carriers that resell local access and usage services as part of their virtual private net offerings.

New England Telephone has no plans to file another tariff in the near future, said Charlie Duffy, V Path product manager.

Both Southern Bell Telephone and Telegraph Co. and South Central Bell Telephone Co. are

(continued on page 10)

Custom net deals fuel demands

continued from page 9

will demand the same treatment.

Robert Self, founder of Market Dynamics, a consulting firm in New York, said one reason AT&T originally asked the Federal Communications Commission to keep secret the rates it will charge the government for FTS 2000 was the fear that large commercial users would push for the same treatment. Those rates are reportedly 9 to 10 cents per minute.

"AT&T didn't want customers to see [the prices] because it gives them a target, and there's no question people will be getting out their Winchesters and sharpening their sights," he said.

However, given the size of the FTS 2000 contract, it is questionable whether the rates charged to the federal government are a realistic target for most users.

Brown said there is no one price that every user should aim for in negotiating a contract, but "18 to 19 cents a minute today looks pretty good," he said.

"If you pay 30 cents per minute, you know something is wrong. If you pay 19 cents per minute, you know you're getting closer [to a good target price]," agreed the CCTU's Phillips.

Tom O'Toole, manager of telecommunications systems at Westinghouse Electric Corp., which is currently evaluating bids for a new telecommunications carrier, set his price target a little higher. "If you are paying more than 22 to 23 cents per minute, you're in trouble," he said.

Already, large customers have negotiated very favorable rates through competitive procurements. AT&T is offering 1+ switched voice service to Marriott Corp. at 16.5 cents per minute under an arrangement dubbed Hospitality Network Service.

AT&T is charging Holiday Corp. 15.8 cents per minute under its Tariff 15 offer, according to information from MCI Communications Corp., the rival carrier competing for Holiday's traffic. Although AT&T does not dispute this figure, it has never made available an average price per minute for Tariff 15. ◼

BOCs set sights on VPN offerings

continued from page 9

developing virtual private network services, said Bill Morrow, a spokesman for the BOC's parent company BellSouth Corp. But he added that it was too early to talk about either company filing tariffs for service.

"The networks will probably be part of a second wave of services to be offered by the operating companies after implementation of Signaling System 7," Morrow said. "South Central Bell has already begun to deploy SS7, and Southern Bell will begin deployment this year."

SS7 will enable the BOCs to separate the signaling information needed to set up calls from the actual traffic-bearing network in preparation for the implementation of advanced services such as Integrated Services Digital Network.

Bell Atlantic Corp. and Southwestern Bell Telephone Co. are also studying SS7, spokesmen for the companies said. SS7 is an advanced out-of-band signaling system used to provide virtual net services.

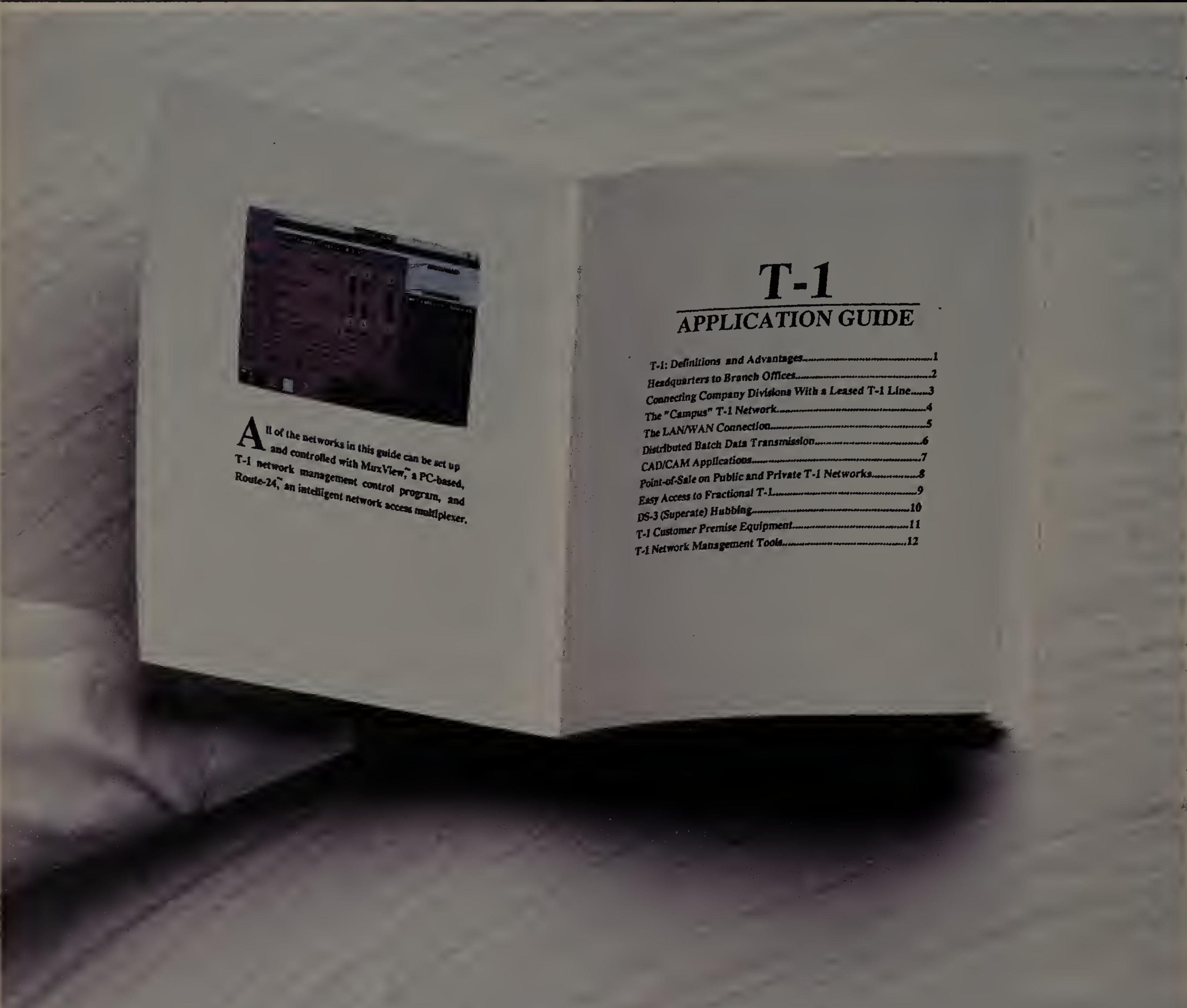
Ameritech's virtual private net is "still in the planning stages," said Jeff Koluch, who handles technical support for virtual network services for Ameritech Services, Inc., Ameritech's research and development company.

The next generation of virtual network services will be implemented on an intelligent network platform, Koluch said.

Pacific Bell is taking a different approach from the other operating companies. According to John Casas, project manager for virtual private-line networks, Pacific Bell wants to integrate its existing Electronic Tandem Network service with the virtual nets of the long-haul carriers and with private corporate nets.

The BOCs are developing virtual private networks in order to remain competitive, said Steve Kropper, an industry analyst for International Data Corp. in Framingham, Mass.

"Local carriers have been losing a lot of business because switching costs are so high. And there has been tremendous growth in dedicated access lines, which don't use switches," Kropper said. Virtual private networks will allow the local carriers to keep their switches busy and to retain customers, he said. ◼



All of the networks in this guide can be set up and controlled with MuxView,™ a PC-based, T-1 network management control program, and Route-24,™ an intelligent network access multiplexer.

T-1
APPLICATION GUIDE

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Free T-1 Application Guide

Looking for a cost-effective way to send your voice, data, and video over a private T-1 backbone? Trying to access the public T-1 network? Searching for an economical way to take advantage of fractional T-1? You'll find the answers in this free guide. It's compiled by people who have installed T-1 equipment in thousands of locations, and who offer the industry's only 5-year warranty on T-1 multiplexers.

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ICA BOOTH #1500

DATA COMMUNICATIONS

PRODUCTS, SERVICES, ARCHITECTURES, STANDARDS AND NETWORK MANAGEMENT

Worth Noting

"The world is moving very fast to a real standard for multivendor network management. IBM is . . . taking steps to be compatible with the real standard, and I want to know exactly how they'll do it and when they'll do it. I get the impression they're just starting to figure it out."

James Herman
Principal
Northeast Consulting
Resources; Inc.
Boston

Data Packets

Mitek Systems Corp. recently announced new peer networking software that supports program-to-program communications between IBM processors and third-party hosts running the Transmission Control Protocol/Internet Protocol.

The new OpenConnect/Advanced Program-to-Program Communications software enables an application on a non-IBM host to directly access data in an IBM application, according to Mitek.

OpenConnect/APPC communicates on a peer basis by supporting IBM's LU 6.2 communications protocol. LU 6.2 uses a standard set of application calls to communicate between applications, according to Catherine Milburn, Mitek's vice-president of marketing.

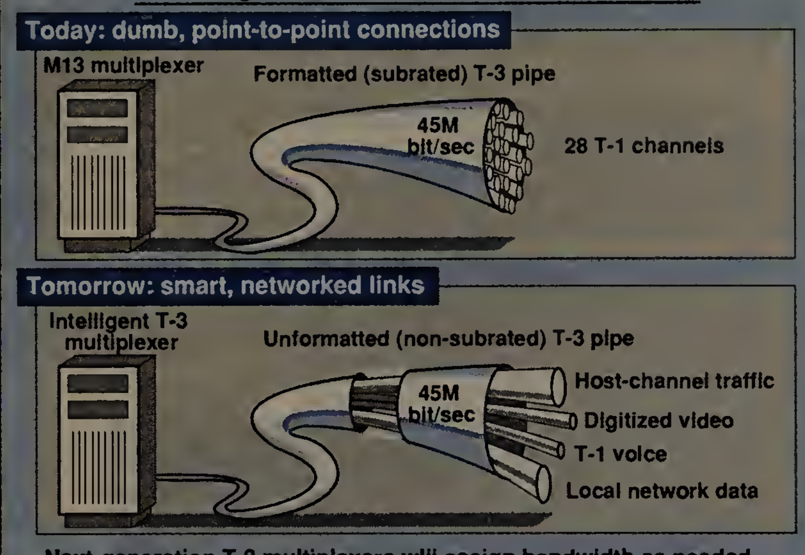
Part of the new Mitek software resides on the OpenConnect/Server hardware, while another portion resides on the TCP/IP hosts.

Available now, OpenConnect/APPC ranges in price from $170 to $3,000, depending on configuration.

Mitek also unveiled a new feature for its OpenConnect/Telnet software, which lets terminal users in IBM 3270

(continued on page 14)

New generation of T-3 muxes


Today: dumb, point-to-point connections
M13 multiplexer
Formatted (subrated) T-3 pipe
45M bit/sec
28 T-1 channels
Tomorrow: smart, networked links
Intelligent T-3 multiplexer
Unformatted (non-subrated) T-3 pipe
45M bit/sec
Host-channel traffic
Digitized video
T-1 voice
Local network data

Next-generation T-3 multiplexers will assign bandwidth as needed, enabling high-capacity applications to run over a backbone network.

GRAPHIC BY SUSAN J. CHAMPENEY

Users push vendors for T-3 upgrade path

Anticipating onset of high-bandwidth applications, users demand assurance from T-1 mux makers.

By Paul Desmond
Staff Writer

Users are demanding that their T-1 multiplexer vendors support T-3 circuits, even though most customers don't see an immediate need to use T-3.

Corporate customers are looking for assurance that T-1 manufacturers will provide an upgrade path to T-3 when users need the extra capacity to support new high-bandwidth applications or to consolidate network facilities for cost savings. Some users are even making future T-3 support a prerequisite in T-1 multiplexer purchases.

> "The main thing that's driving us into DS3 is video," Maryland's Martin said.
>
> ▲▲▲

Network Equipment Technologies, Inc. (NET) was so anxious to declare its commitment to T-3 that it recently announced a T-3 multiplexer nearly a year before the product is scheduled to ship ("NET unveils T-3 mux in product blitz," *NW,* April 17).

Other vendors that have announced support for T-3 include Infotron Systems Corp. — the only T-1 vendor currently shipping a multiplexer that supports T-3 speeds — and Newbridge Networks, Inc. Both companies report strong user interest in the products but few sales.

That's a reflection of the fact that few users need T-3 links today. But that may soon change for users with emerging high-bandwidth applications.

"The main thing that's driving us into DS3 is video," said Norm Martin, director of the office of telecommunications for Maryland's state government. Maryland plans to install videoconferencing applications for some state agencies and in its schools, to let a single teacher conduct classes in multiple locations, Martin said.

Maryland recently installed Newbridge MainStreet multiplexers in a new statewide T-1 backbone network.

Martin said Newbridge assured him that those MainStreet multiplexers would support T-3 by the end of this year, in time for the state to install the first of its two planned T-3 links.

Like Martin, Bob Bystedt, director of telecommunications services for Rockwell International Corp. in Seal Beach, Calif., is looking to T-3 to support high-bandwidth applications that Rockwell may eventually use, such as image and video transmission.

"Right now, the data's driving the network as far as growth," Bystedt said. "We have to plan for imaging and video."

Part of an active Rockwell request for proposal for T-1 equipment specifies that vendors must support T-3 by 1992, which is when the company expects it will need that bandwidth, Bystedt said.

Other users want T-3 more for the network economies of scale it provides.

SunGard Recovery Services of

(continued on page 14)

Bytex announces low-cost, entry-level matrix switch

Autoswitch XP shifts lines from failing devices.

By John Cox
Senior Editor

SOUTHBOROUGH, Mass. — Bytex Corp. recently announced the Autoswitch XP, a low-cost, entry-level matrix switch designed for small or remote sites.

The Autoswitch XP can be used to shift communications lines from a failing device, such as a modem or multiplexer, to a spare device.

Each Autoswitch XP chassis supports from 28 to 112 ports, depending on the interfaces selected by the customer. As many as 16 Autoswitch XPs can be linked together. The Autoswitch XP supports RS-232-C, V.24, V.35, X.21, T-1, Mil 188 and analog interfaces as well as both synchronous and asynchronous transmission.

The Autoswitch XP offers 32 RS-232-C ports and a system control console, which uses menu displays that allow a user to shift individual lines or groups of lines with a single command.

Using an optional microcomputer-based control console, users can automate the line-switching function.

By attaching test equipment to the switch, users can monitor or test multiple connections from a single port. Without Autoswitch, users would have to use a patch panel and devices would have to be physically reattached to each line port to be tested.

The switch's price varies depending on the configuration chosen, but the average price per port on the Autoswitch XP is $200, according to Barry Charton, director of marketing for Bytex. The Autoswitch XP will begin shipping in mid-June.

According to Charton, matrix switches were invented in the early 1980s as a means of quickly shifting lines from a failing front-end processor to a spare device. Users could also attach an external test device to one port on the switch and test every line coming into the switch.

The Autoswitch XP was designed to extend these capabilities into much smaller sites, replacing the more cumbersome patch panels that are usually used for these tasks, Charton said.

The Autoswitch XP can be used with the company's newly announced Remote Test Access Link, a box used to test communications lines remotely (see "Unit tests lines linked to remote matrix switches," page 23).

Bytex is located in Southborough Office Park, 120 Turnpike Road, Southborough, Mass. 01772, or call (508) 480-0840. ◼

ViTel adds E-mail support to telex and fax software

By John Cox
Senior Editor

MILL VALLEY, Calif. — ViTel International, Inc. is expected to release next week a version of its microcomputer-based telex and facsimile management software that supports electronic mail.

The new version of the software, called Vitelink, will let microcomputer users create, send, receive and manage not only telex and facsimile messages but also E-mail messages from a single microcomputer linked to ViTel's global computer-based messaging network.

That network is a mesh-type switched net that transmits messages over leased- and voice-grade circuits to five main switch sites worldwide.

In addition, for the first time, ViTel network users will be able to use Vitelink to transfer binary computer files between two microcomputers on the network.

The Vitelink enhancements are part of the value-added carrier's efforts to extend the message product offerings supported by its international network, according to Bruce Cohen, president of ViTel, based here.

ViTel's customers are mainly multinational companies — such as Budget Rent-A-Car Corp. and Smith Barney, Harris Upham & Co., Inc. — that need to interconnect their far-flung sites with various business message services.

Vitelink software runs on any IBM Personal Computer XT with at least 512K bytes of memory, a hard disk and a modem. The software offers users various addressing options, such as a facsimile cover sheet and message delivery instructions.

The software has several features that automate collection of message status information. Vitelink can collect the status reports from remote mail switches and update its internal tracking sys-

(continued on page 14)

IT'S A THREE-WAY SWEEP!

Only Network World earned this triple recognition in 1988.

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ONE

Most Important/Most Useful Networking/Communications Publication

It began with the 1988 *Wall Street Journal* Telecommunications Study naming *Network World* the Most Important/Most Useful networking/communications trade publication among ICA members. *Network World* notched a 34 percentage point increase in its climb to the Most Important/Most Useful position, while every other networking/communications trade publication actually lost ICA member support — by as much as 9 percentage points.

Publication	Percentage-point Increase/Decrease
Network World	34%
TP+T	-1%
Data Communications	-1%
Telephony	-2%
Teleconnect	-3%
Telecommunications	-3%
Communications Week	-8%
Communications News	-9%

Source: *The Wall Street Journal* Telecommunications Study by Erdos and Morgan, March 1986 and March 1988.

TWO

Most Helpful Publication

Then the 1988 Telecommunications Association Member Study revealed *Network World* to be the Most Helpful publication for giving managers and users the kind of news and information they need every day.

Publication	Preference
Network World	30%
Communications Week	25%
Business Communications Review	20%
Communications News	15%
Data Communications	15%
Teleconnect	15%
Telecommunications	10%
Telephony	10%

Source: 1988 Telecommunications Association Member Study.

THREE

Largest Growth in Ad Pages

And the December 1988 TA Report showed *Network World* leading all other networking/communications publications in ad-page growth. In fact, *Network World's* growth for the comparative periods exceeded that of its nearest competitor by 63%!

Publication	Ad-Page Growth
Network World	64%
Data Communications	1%
Communications Week	-5%
TEM	-12%
Telephony	-20%
Telecommunications	-20%

Source: December 1988 TA Report. Comparative growth in advertising pages for the period from January-December 1988 versu January-December 1987.

Network World delivers your advertising message to an audience of over 70,000 ABC audited buyers — who each plan to spend an average of $2.5 million on networking/communications products and services in the next 12 months. So when you're planning your strategy for reaching buyers, go for a sweep — and turn to *Network World*. Call Paul McPherson, Director of Advertising, at (508) 820-2543 to reserve your space today!

Users push vendors for T-3 upgrade path

continued from page 11

Wayne, Pa., provides disaster recovery services and maintains data centers in Philadelphia, Chicago and San Diego. To consolidate T-1 lines and meet the demands of its growing user base in the Northeast, SunGard will soon install four T-3 links between New York and Philadelphia, said John Lindeman, manager of network products for SunGard.

Falling costs

Lindeman estimated that in the New York area, where there is heated competition among carriers, it is economical to move to T-3 if a company is using anywhere from six to eight T-1 lines. "A few years ago, in the same Northeast corridor, we were talking 16 to 17 DS1s to justify this. I keep seeing [costs] fall," he said.

To date, SunGard is the only user to buy Infotron's StreamLine 45 T-3 multiplexer, a product manufactured by Licom, Inc. that Infotron has brought under its network management system.

SunGard will use its T-3 links in much the same manner as telephone companies have for years — to concentrate T-1s coming in from various points for transmission over a long-haul link. SunGard will use T-3s between New York and Philadelphia to transmit its customers' data to the Philadelphia data center.

But one key difference in SunGard's application is the ability to drop out or insert individual T-1s or fractional T-1s into the T-3 pipe anywhere between New York and Philadelphia.

Point to point only

The T-3 multiplexers that carriers typically use, known as M13s, can handle only point-to-point transmissions. They cannot break out individual T-1s or any portion of a T-1 without first breaking down the T-3 into the 28 T-1s comprising the link, said Louis Stilt, manager of StreamLine Systems at Infotron.

That's where T-3 standards come in.

"Starting in about 1990 or 1991, there will be another generation of T-3 products that are considerably more sophisticated, easy to use and that incorporate the [Synchronous Optical Network] standard for synchronous optical multiplexing," predicted Josh Gonze, a research analyst with International Data Corp., a market research company in Framingham, Mass.

SONET is an international standard for carrying T-3s over fiber that defines DS3 speed as 51.84M bit/sec, Stilt said. It provides for the synchronization of DS1s within a DS3, a capability not supported by M13 multiplexers.

That synchronization is what lets users add or drop individual T-1s from a T-3 backbone , Stilt said.

SONET is the international version of the Synchronous Transmission (SYNTRAN) standard, which defines a T-3 as a 44.736M bit/sec pipeline. SYNTRAN is used only in the U.S., Stilt said. Infotron's StreamLine 45 T-3 multiplexer complies with SYNTRAN but is not yet compatible with SONET, he said.

Joint development plan

Likewise, NET has also announced plans to work with Tellabs, Inc. on development of a SONET-compatible offering. Newbridge's MainStreet multiplexer will comply with existing M13 formats, a capability that lets the product easily interface to carrier-based services such as AT&T's Dataphone Digital Service or Megacom 800, said Jim Michaels, director of product marketing at Newbridge.

According to Timothy Zerbiec, a principal with the Dedham, Mass.-based consultancy Vertical Systems Group, SYNTRAN- or SONET-based multiplexers can also support those services when outfitted with the appropriate interface card. ◘

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The Auscom line of channel interfaces from KMW Systems has been outselling the competition for more than 12 years. In fact, we now have an installed base of more than 4,000 units. And for good reason: KMW Systems offers the broadest range of IBM and compatible mainframe channel connections available anywhere, backed by a dedication to service and support that's unsurpassed.

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Data Packets

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and TCP/IP environments access hosts in other environments. Async Pass Thru permits a data transmission from an asynchronous terminal attached to a TCP/IP host to pass through a Systems Network Architecture backbone in order to access a TCP/IP host on a separate Ethernet.

This feature is incorporated in the new OpenConnect/Telnet. Pricing for the Telnet package starts at $9,000 per copy.

Mitek's OpenConnect is a family of hardware and software products that extend SNA capabilities into Ethernet TCP/IP networks, Milburn said.

Mitek is located at 2033 Chennault Drive, Carrollton, Texas 75006, or call (214) 490-4090. ◘

ViTel adds E-mail support to software

continued from page 11

tem. The user can then review the message delivery date and other details. This information can be stored in an archive file to create a record of all communications.

Ensuring message delivery

The software will also record if the mail message was "force delivered" — meaning that if a mail message is not read by its recipient by a preset time (determined by the user), ViTel will deliver it as a telex or facsimile message.

An unlimited user site license for the Vitelink software costs $150 per copy. Current users of other ViTel communications software, such as Vitelefax, can test the new package for 30 days. If they decide to buy it, they will receive a $50 discount.

ViTel is located at 100 Shoreline Highway, Suite A-190, Mill Valley, Calif. 94941, or call (415) 332-5134. ◘

PASS-ALONG QUALIFICATION FORM PASS-ALONG

QUALIFICATION FORM

A. I Wish to Receive a FREE Subscription to NetworkWorld.

YES ☐ NO ☐

Signature .... Date ....

Business Phone ....

B. Please Provide your Name, Title & Company Address.

DR./MR./MRS./MS. ....
First Name Middle Name Last Name

TITLE ....

COMPANY NAME ....

DIVISION/DEPARTMENT ....

STREET ADDRESS ....

CITY .... STATE .... ZIP ....

C. Please Answer ALL Questions, Sign & Date the Form.

1. Industry: (check one only)

01. ☐ Manufacturers (other than computer/communications)
02. ☐ Finance/Banking
03. ☐ Insurance
04. ☐ Real Estate
05. ☐ Healthcare Services
06. ☐ Legal
07. ☐ Hospitality
08. ☐ Retail/Wholesale Trade
09. ☐ Transportation
10. ☐ Utilities
11. ☐ Education
12. ☐ Process Industries (Mining/Construction/Petroleum Refining/Agriculture/Forestry)
13. ☐ Government State/Local
14. ☐ Government Federal
15. ☐ Military
16. ☐ Aerospace
17. ☐ Consultants (independent)
18. ☐ Carriers
19. ☐ Interconnects
20. ☐ Manufacturers (Computer/Communications)
21. ☐ VAR/VAD/Systems House
22. ☐ Distributor, Computer Related
23. ☐ Distributor, Communications Related
24. ☐ Other ____________

2. Job function (check one only)

1. ☐ Networking Management (Responsible for both voice & data)
2. ☐ Data Communications Management (Responsible for data only)
3. ☐ Telecommunications Management (Responsible for voice only)
4. ☐ MIS Management (VP,Dir,Department Head)
5. ☐ Corporate Management (Chairman, President, Owner, General Manager, CEO, CIO, VP)
6. ☐ Financial Management
7. ☐ Engineering Management
8. ☐ Consultant (Independent)
9. ☐ Other____________

3. Your primary responsibility (check one only)

1. ☐ Data Networking
2. ☐ Voice Networking
3. ☐ Both
4. ☐ None

4. Is your network: (check all that apply)

LOCAL AREA NETWORKS
1. ☐ Local (within building)
2. ☐ Local (in a campus environment)

WIDE AREA NETWORKS
3. ☐ International
4. ☐ National
5. ☐ Regional (several states)
6. ☐ Metropolitan

5. Which transmission media do you use in your network: (check all that apply)

Public:
1. ☐ Switched-Based (DDD,Wats,Megacom,etc.)
2. ☐ Leased Line (not including T-1)
3. ☐ T-1
4. ☐ T-3
5. ☐ Digital Data Service

Private:
6. ☐ Satellite
7. ☐ Microwave
8. ☐ Fiber Optic

6. Which of the following vendors will you consider buying your PBX/Central Office Switch from in the next 12 months? (check all that apply)

	A PBX	B COS	
01.	☐	☐	AT&T
02.	☐	☐	ALCATEL
03.	☐	☐	CONTEL
04.	☐	☐	ERICSSON
05.	☐	☐	FUJITSU
06.	☐	☐	HARRIS
07.	☐	☐	HITACHI
08.	☐	☐	IBM/ROLM Systems Division
09.	☐	☐	INTECOM
10.	☐	☐	MEMOREX TELEX
11.	☐	☐	MITEL
12.	☐	☐	NEC
13.	☐	☐	NORTHERN TELECOM
14.	☐	☐	SIEMENS
15.	☐	☐	STROMBERG-CARLSON
16.	☐	☐	TOSHIBA
17.	☐	☐	OTHER

7. What operating systems do you utilize? (check all that apply)

1. ☐ CICS
2. ☐ IBM DOS
3. ☐ MVS
4. ☐ UNIX
5. ☐ VM
6. ☐ VMS
7. ☐ OTHER ____________

8. Please indicate by vendor the number of mainframes/minicomputers installed in your network.

VENDOR	MAIN-FRAMES A	MINIS B
01. DEC		
02. IBM		
03. AMDAHL		
04. AT&T		
05. HONEYWELL BULL		
06. NCR		
07. DATA GENERAL		
08. WANG		
09. HEWLETT PACKARD		
10. PRIME		
11. TANDEM		
12. UNISYS		
13. CONTROL DATA		
14. OTHER		

9. Please indicate by vendor the number of microcomputers:

A) Presently installed in your network.
B) The approximate quantity you plan to install in the next 12 months.

MICROCOMPUTER VENDOR/ WORKSTATION	PRESENTLY INSTALLED A	PLAN TO INSTALL NEXT 12 MONTHS B
01. COMPAQ		
02. PCs based on 80386 chip		
03. IBM (PC,XT,AT)		
04. IBM (PS/2)		
05. APPLE (Macintosh)		
06. AT&T		
07. SUN		
08. APOLLO		
09. LAPTOPS		
10. OTHER		

10. What is your host network architecture? (check all that apply)

1. ☐ SNA
2. ☐ DECNET
3. ☐ OSI
4. ☐ GOSIP
5. ☐ MAP/TOP
6. ☐ OTHER ____________

11. What is your LAN Operating System? (check all that apply)

01. ☐ 10NET
02. ☐ 3COM (3+, 3+open)
03. ☐ APPLETALK
04. ☐ BANYAN (VINES)
05. ☐ DCA (IRMALAN)
06. ☐ IBM (OS/2 EXTENDED EDITION)
07. ☐ IBM (PC Network)
08. ☐ MICROSOFT (LAN MANAGER)
09. ☐ NOVELL (NETWARE)
10. ☐ NOVELL (NETWARE MAC)
11. ☐ TOPS (TOPS)
12. ☐ OTHER ____________

12. What is your LAN environment? (check all that apply)

1. ☐ Token Ring
2. ☐ ARCNET
3. ☐ Ethernet
4. ☐ Starlan
5. ☐ Other____________

NETWORK WORLD
The Newsweekly of User Networking Strategies

13. What is the scope of your involvement in purchase decisions for Network/Communications products + services? (check all that apply)

1. ☐ Organization-wide
2. ☐ Subsidiary/division wide
3. ☐ Department-wide
4. ☐ For multiple organizations (consultants)
5. ☐ Other ____________

14. For which network hubs outside of the US do you have purchasing influence? (check all that apply)

1. ☐ Europe
2. ☐ Asia
3. ☐ South America
4. ☐ Australia
5. ☐ Middle East

15. Write below the total number of sites for which you have purchase influence? ☐

16. Check ALL that apply in columns A and B

A) I am presently involved in the purchase process for the following products/services:
B) I plan to purchase the following products/service in the next 12 months:

	Presently Involved A	Plan to Purchase B	
			- COMPUTERS/PERIPHERALS: -
01.	☐	☐	Micros
02.	☐	☐	Minis
03.	☐	☐	Mainframes
04.	☐	☐	Front End Processors
06.	☐	☐	Terminals
07.	☐	☐	Printers
	A	B	- SOFTWARE: -
10.	☐	☐	Network Management
11.	☐	☐	Micro to Mainframe
12.	☐	☐	Network Security
13.	☐	☐	Call Accounting
14.	☐	☐	Data Base Management
15.	☐	☐	Systems Software
16.	☐	☐	Communications Software
17.	☐	☐	Applications Software
18.	☐	☐	Network Operating Systems Software
	A	B	- DATA COMMUNICATIONS -
20.	☐	☐	Modems (over 9.6kbps)
21.	☐	☐	Modems (under 9.6kbps)
22.	☐	☐	T-1 multiplexers
23.	☐	☐	Other Multiplexers
24.	☐	☐	Data Switches
25.	☐	☐	Matrix Switches
26.	☐	☐	Packet Switches
27.	☐	☐	Local Networks
28.	☐	☐	Protocol Converters
29.	☐	☐	Network Management Systems
30.	☐	☐	Terminal Emulation Boards
31.	☐	☐	Facsimile Machines
32.	☐	☐	Diagnostic Test Equipment
33.	☐	☐	Data Service Unit
	A	B	- TELECOMMUNICATIONS -
40.	☐	☐	PBXs (over 1000 lines)
41.	☐	☐	PBXs (200 - 1000 lines)
42.	☐	☐	PBXs (under 200 lines)
43.	☐	☐	Key Systems
44.	☐	☐	Automatic Call Distributors
45.	☐	☐	Voice Messaging Systems
46.	☐	☐	Channel Service
48.	☐	☐	Short Haul Bypass Equipment (Microwave, Infrared, etc.)
	A	B	- TRANSMISSION SERVICES -
50.	☐	☐	Switched Voice
51.	☐	☐	Dedicated Leased Line
52.	☐	☐	T-1
53.	☐	☐	T-3
54.	☐	☐	Digital Data
55.	☐	☐	Packet Switched
56.	☐	☐	Centrex
57.	☐	☐	Central Office LAN
58.	☐	☐	Satellite
59.	☐	☐	Fiber Optic
60.	☐	☐	On-Line Information
61.	☐	☐	Systems Integration
62.	☐	☐	Network Optimization
63.	☐	☐	Microwave
64.	☐	☐	Cables, Connectors, Baluns
65.	☐	☐	ISDN
66.	☐	☐	EMail

17. Estimated value of networking equipment and services:

A) Which you helped specify, recommend or approve in the last 12 months?
B) Which you plan to help specify, recommend or approve in the next 12 months?

	A	B	
01.	☐	☐	$25 million and over
02.	☐	☐	$20 - $24.9 mil
03.	☐	☐	$10 - $19.9 mil
04.	☐	☐	$5 - $9.9 mil
05.	☐	☐	$1 - $4.9 mil
06.	☐	☐	$500,000 - $999,999
07.	☐	☐	$250,000 - $499,999
08.	☐	☐	$100,000 - $249,999
09.	☐	☐	$50,000 - $99,999
10.	☐	☐	under $50,000

18. Estimated gross annual revenue of your entire company/institution: (check one only)

1. ☐ over $10 billion
2. ☐ $1 to $9.9 bill
3. ☐ $500 mil to $1 bill
4. ☐ $100 to $499.9 mill
5. ☐ $50 to $99.9 mill
6. ☐ $10 to $49.9 mill
7. ☐ $5 to 9.9 mill
8. ☐ under $5 mill

19. A) Estimated number of employees for your entire corporation: (check one in column A) B) Estimated number of employees at this location: (check one in column B)

	A	B	
1.	☐	☐	over 10,000
2.	☐	☐	5,000 - 9,999
3.	☐	☐	2,500 - 4,999
4.	☐	☐	1,000 - 2,499
5.	☐	☐	500 - 999
6.	☐	☐	under 500

20. When do you plan to implement ISDN?

1. ☐ Currently testing
2. ☐ 12 - 24 months
3. ☐ 24 - 36 months
4. ☐ 36 + months
5. ☐ not implementing

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Worth Noting

"Our [local] network procurement strategy is based on a combination of arm-twisting, equipment donations and comparison shopping."

Walter Weir
Executive director
Computer systems and MIS
Fordham University
New York

Netnotes

Network Software Associates, Inc. (NSA) of Laguna Hills, Calif., has bundled three IBM Systems Network Architecture emulators in a local net-to-host communications software package that works with NSA's AdaptSNA LAN Gateway product.

Called AdaptSNA SuperPak, the software supports Network Basic I/O System-compatible local-area nets.

It runs on each personal computer that requires access to an SNA host.

AdaptSNA SuperPak lets personal computer users emulate a peer-to-peer communications session using IBM's LU 6.2/Advanced Program-to-Program Communications protocol.

Users may also emulate interactive 3270 terminals or terminals communicating with IBM hosts via batch 3770/Remote Job Entry protocols.

Support for IBM's LU 0 connectivity is available as an option.

Each workstation can support any of the protocols, and different devices can run several protocols concurrently.

AdaptSNA SuperPak is priced at $1,495 for a four-user version.

NSA also released an entry-level AdaptSNA LAN Gateway, a microcomputer-to-mainframe gateway that supports two workstations on a token-ring network.

Priced at $995, it includes the AdaptSNA SuperPak software and can be upgraded to support as many as 128 stations. ◼

Sun ushers in RISC-based desktop systems, servers

Firm announces most powerful servers to date.

By Susan Breidenbach
West Coast Bureau Chief

MOUNTAIN VIEW, Calif. — Sun Microsystems, Inc. earlier this month introduced a new line of Reduced Instruction Set Computer (RISC)-based desktop systems and servers, including its most powerful network server yet.

Sun introduced five workstations and three servers. The products include the SPARCstation 1, a machine that delivers 12.5 million instructions per second (MIPS), priced at $8,995, and the SPARCserver 300, a line of servers, which start at $28,900. The servers support on-line disk capacities of up to 32G bytes. Sun said the 16-MIPS 300 servers are the highest performance computers it has ever produced.

At the low end, Sun introduced a line of small-footprint workstations based on Motorola Corp.'s 68030 microprocessor. Pricing for this line starts at $5,995 for a diskless net workstation.

"We now have platforms with the kind of price/performance we need to go heavily into new markets," said Lou Delzompo, product line manager for network products at Sun. However, he added, the company will initially be concentrating on expanding existing customers' use of its products, not going after entirely new markets.

The new products support Sun's Network File System software as well as attachment to Sun's Ethernet-based network offerings.

"Our intent is to expand our beachhead in existing accounts by going after more desktops," Delzompo said. This should help fuel development of more commercial business applications for Sun's systems, which, in turn, should attract new customers.

Currently, Sun workstation users that employ the vendor's products in mainstream office automation tasks tend to be the various support groups that work with engineering personnel. However, Sun hopes to expand its appeal into mainstream business markets that traditionally use personal computers.

(continued on page 16)

LANMARKS

BY JOSEPH GREANEY

Broadband technology stages a comeback

In the past, network users might have been apt to respond to claims of broadband local net makers with the skepticism usually reserved for Joe Isuzu.

Broadband local networks tended to be expensive to install, cumbersome to operate and incompatible with the popular Ethernet baseband nets popping up in every office. In the minds of many network managers, those perceptions remain.

But, in fact, broadband technology has undergone major changes. Today, broadband *can* help networks. Broadband local nets are less costly, easier to use, more flexible and much more compatible with other networks than they were a few years ago.

On the plus side, broadband networks can cover greater distances than baseband local nets — up to several miles. While distance wasn't much of a factor in the early days of networking, the sprawling growth of local networks is now stretching some baseband distances to the limit.

Broadband's other drawing card has always been multichannel capability. By using frequency-division multiplexing, broadband can carry as many as 40 or 50 channels of 6 MHz each. The bandwidth of a single television channel is 6 MHz, which hails back to broadband's origins in community antenna TV.

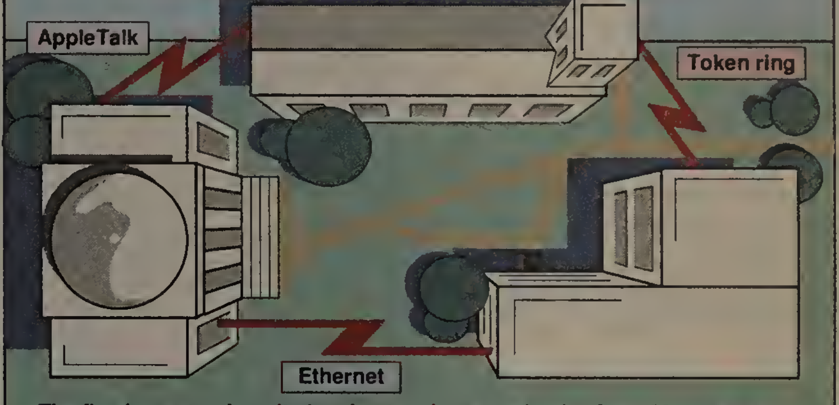
If used for data alone, broadband's multichannel capability gives it a data capacity that approaches fiber-optic networks. More interesting is the ability to mix data and other media. Imagine a broadband net that not only links an organization's personal computers, but also provides videoconferencing be-

(continued on page 17)

Greaney is vice-president of engineering at LANEX Corp. in Beltsville, Md.

Big LAN on campus

1. Carnegie-Mellon University
2. U.S. Military Academy at West Point
3. Massachusetts Institute of Technology
4. California Institute of Technology
5. University of Michigan



The five largest university local networks range in size from 20 to more than 100 local nets which support 2,300 to 5,000 nodes per university.

GRAPHIC BY SUSAN J. CHAMPENY SOURCE: INTERNATIONAL DATA CORP., FRAMINGHAM, MASS.

Colleges use tactics to garner LAN gear

Schools rely on grants, donations and ingenuity to get the equipment they can't afford to buy.

By Laura DiDio
Senior Editor

FRAMINGHAM — Lacking the buying clout of commercial users, colleges and universities are using a variety of strategies to procure local networks.

Universities, both large and small, set their sights on grants from foundations and corporate sponsors to finance equipment purchases. Some schools volunteer their services to suppliers as research partners or beta test sites in return for network hardware and software. Universities even depend on major equipment donations to stock campus networks.

"For the most part, we rely on grants and do whatever we must to get them: beg, borrow, cry poverty, you name it," said Hank Skelton, computer operations manager at Meharry Medical College in Nashville. "Without the grants, we wouldn't be able to make it. We have to keep our systems, software and networks until they're literally crumbling."

Although many universities and colleges don't have fistfuls of cash to plunk down for network gear, vendors compete aggressively for their orders. Educators are aware of this and try to drive hard bargains with vendors.

But vendor deals are not the only method universities use to bolster their networks; many institutions have resorted to other innovative ploys to finance network equipment purchases or to ensure today's procurements will be sound investments down the road.

"We don't have the cost constraints that smaller universities are faced with, but we still get pretty creative about acquiring equipment and networks," said Tom Bajzek, executive director of Carnegie-Mellon University's statewide Prepnet network.

Carnegie-Mellon, in Pittsburgh, has between 2,500 and 3,000 computers spread out across 100 local nets. These nets, which comprise Prepnet, are a mixture of Ethernet and token-ring installations running the Transmission Control Protocol/Internet Protocol.

Carnegie-Mellon, as one of the nation's largest academic research centers, is one of the few that is assured of state-of-the-art computer and network equipment.

> Many institutions have resorted to innovative ploys to finance purchases.
>
> ▲▲▲

Since 1983, the university has participated in an ongoing joint net development project with IBM. In the past six years, IBM has donated wiring, workstations, Token-Ring Network interface cards and other equipment to Carnegie-Mellon.

Despite these windfalls, Carnegie-Mellon is circumspect about its network purchases. "You always find yourself

(continued on page 16)

Colleges use tactics to garner gear

continued from page 15

stretching purchasing dollars," Bajzek said. "We usually buy in large quantities to get the best price."

Another large university, the Massachusetts Institute of Technology in Cambridge, also has a large network setup. MIT has about 2,300 computer systems on 40 Ethernet local nets that are linked to a Proteon, Inc. ProNet-10 token-ring backbone.

Like Carnegie-Mellon, MIT has cultivated partnerships with vendors. One of the most prominent is Project Athena. Funded by IBM, Digital Equipment Corp. and MIT, Project Athena is an educational project used as a teaching and study tool by students and faculty.

The project uses MIT's networks as adjunct aids to classroom teaching, according to Jeffrey Schiller, MIT's network manager. Project Athena has 800 workstations and 50 file servers linked on several campuswide Ethernets. Students, faculty and administrators use the nets to send electronic mail messages and access files related to courses.

MIT designed the network to be a revenue producer. Students access network services free of charge, but faculty, researchers and administrators are billed a monthly fee that comes out of their departmental budgets.

"It helps us underwrite a good portion of the overall network costs," Schiller said.

Grading vendors

Many midsize colleges and universities would like to emulate the network setups of the large academic research center networks, but they usually do not have the necessary funds.

Fordham University in New York is one such institution. "We never have enough money. But we want to be a close follower of the MITs and Carnegie-Mellons. We have to go with proven technology that's easy to maintain," said Walter Weir, executive director of computer systems and MIS at the school.

Fordham is an all-DEC shop; its 5,000 network users share about 1,500 devices, including terminals and personal computers, across three campuses. Fordham's budget allots $500,000 to $1 million for new procurements annually.

According to Weir, Fordham drives hard bargains with DEC. "Because we purchase our networks and all service and maintenance from DEC, we're entitled to significant discounts. If we see that they're not giving us a good price on equipment or service, we threaten to jump to the competition," he said.

Fordham also gives DEC a monthly report card, grading the company on mean time between equipment failure and service.

"It keeps them honest and results in better service and sometimes free installation," Weir said. ◼

Sun ushers in desktop systems

continued from page 15

"Now we have a platform that is price- and feature-competitive with PCs," Delzompo said.

Sun's networking products are "probably equally suited" to both the commercial and engineering/scientific markets, with one glaring exception: the lack of a token-ring adapter, he said.

"Token-ring [connectivity] is seen as a requirement to get into more commercial markets," Delzompo said. Sun is testing a token-ring product on its 386i workstation line but has not introduced such a product for the powerful new SPARCstation 1.

"That's one missing requirement that [will] have to be rectified at some point," he said.

Similarly, Delzompo said Sun's Open Network Computing architecture remains a viable platform for distributed applications among Sun's existing customer base. However, he said, "As we talk about new accounts, there are other technologies we'll have to consider; [Microsoft Corp.'s] Named Pipes is an example."

For now, though, Sun is going after the commercial office automation market, Delzompo said.

"We can attract more desktops in the markets we already are a player in, but we need a lot more hardware and software to go after the true commercial market," he said. ◼

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Broadband stages comeback

continued from page 15

tween departments and turns down all the thermostats at night.

Offsetting these advantages was price. Traditionally, the initial cost of a broadband local network has been perceived to be up to 10 times more than baseband. Moreover, connecting a computer to a broadband network requires a modem, which will invariably be more expensive than a transceiver connection to a baseband local net.

Lack of standards used to be another drawback. Baseband users in the early 1980s settled on Ethernet as a standard, which dramatically increased its popularity. Broadband users, on the other hand, still struggled with conflicting protocols.

Today, both of broadband's major disadvantages have been eliminated, thanks to technical and market changes that have occurred in the past several years.

First, broadband installation costs have tumbled from about $50,000 to as low as $10,000.

Broadband Networks, Inc. in State College, Pa., and AMP, Inc. in Harrisburg, Pa., have developed a modular system that replaces the expensive custom-built broadband network. By starting small and expanding as the need arises, broadband users can keep capital costs to a minimum.

While broadband modems will probably always cost more than baseband transceivers, the modem market has become more competitive. Initially supplied only by ChipCom Corp., broadband modems are now also available from a variety of vendors.

Both of these cost-reduction measures have been made possible by the other major change in broadband — standardization. The IEEE 802.3 10Broad36 standard for running Ethernet on broadband nets was adopted in 1986. And the IEEE 802.7 committee has standardized broadband cable plants. With the Ethernet broadband standard, it has become easier not only to use broadband local networks; but to mix and match broadband with Ethernet baseband. ◘

Asian firm bows into net market

By Susan Breidenbach
West Coast Bureau Chief

MOUNTAIN VIEW, Calif. — Japanese manufacturer Allied Telesis, Inc. recently entered the U.S. local network market with a low-priced Ethernet adapter and a modular concentrator that supports multiple media types.

According to the company, the CentreCOM PC/SIC adapter is the first half-size Ethernet interface with 32K bytes of dual-ported memory. This enables a personal computer to access data faster than if it were transmitted across communications ports.

An on-board jumper switch can be used to match the adapter to the clock speed of the host personal computer, with a one-wait-state setting for 20-MHz systems and a zero-wait-state option for slower machines.

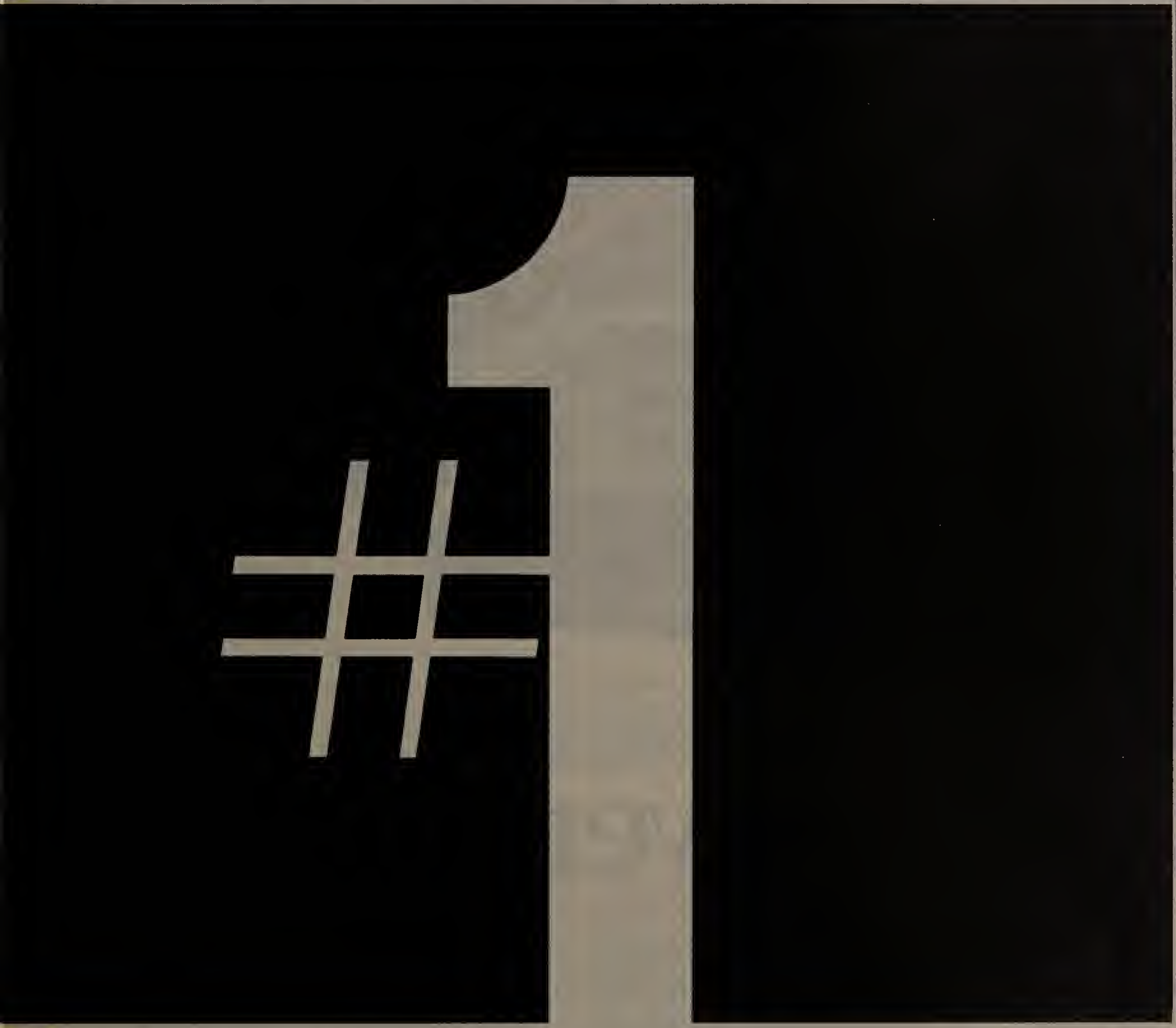
The board includes external connectors for both thin- and thick-wire Ethernet, but it costs $395, significantly less than other boards. By contrast, those boards with few extra functions sell for $395, while Ethernet interfaces with extra features cost as much as $695.

The CentreCOM 5000 multimedia concentrator is a wiring concentrator that links various Ethernet wiring segments so they can communicate with one another. Unlike traditional concentrators, which can only tie together one type of wiring, the CentreCOM 5000 links thick-wire Ethernet, thin-wire Ethernet and fiber-optic cables.

The device is a rack-mounted chassis that accepts plug-in modules suitable for the different media that plug into the interfaces. The front-loading card cage can accommodate as many as 10 modules.

Takayoshi Oshima, founder and chairman of Allied Telesis, said support of unshielded twisted-pair wire would be incorporated into the CentreCOM Ethernet products as soon as chipsets based on the final IEEE 10BaseT standard are available.

The basic CentreCOM 5000 chassis with power supply costs $1,295. Interface modules start at $249. ◘



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*Datapro, *User Ratings of Network Management Systems*, September, 1988.

**International Data Corporation (IDC), *Quantitative Analysis of the Network Management Market*, October, 1988.

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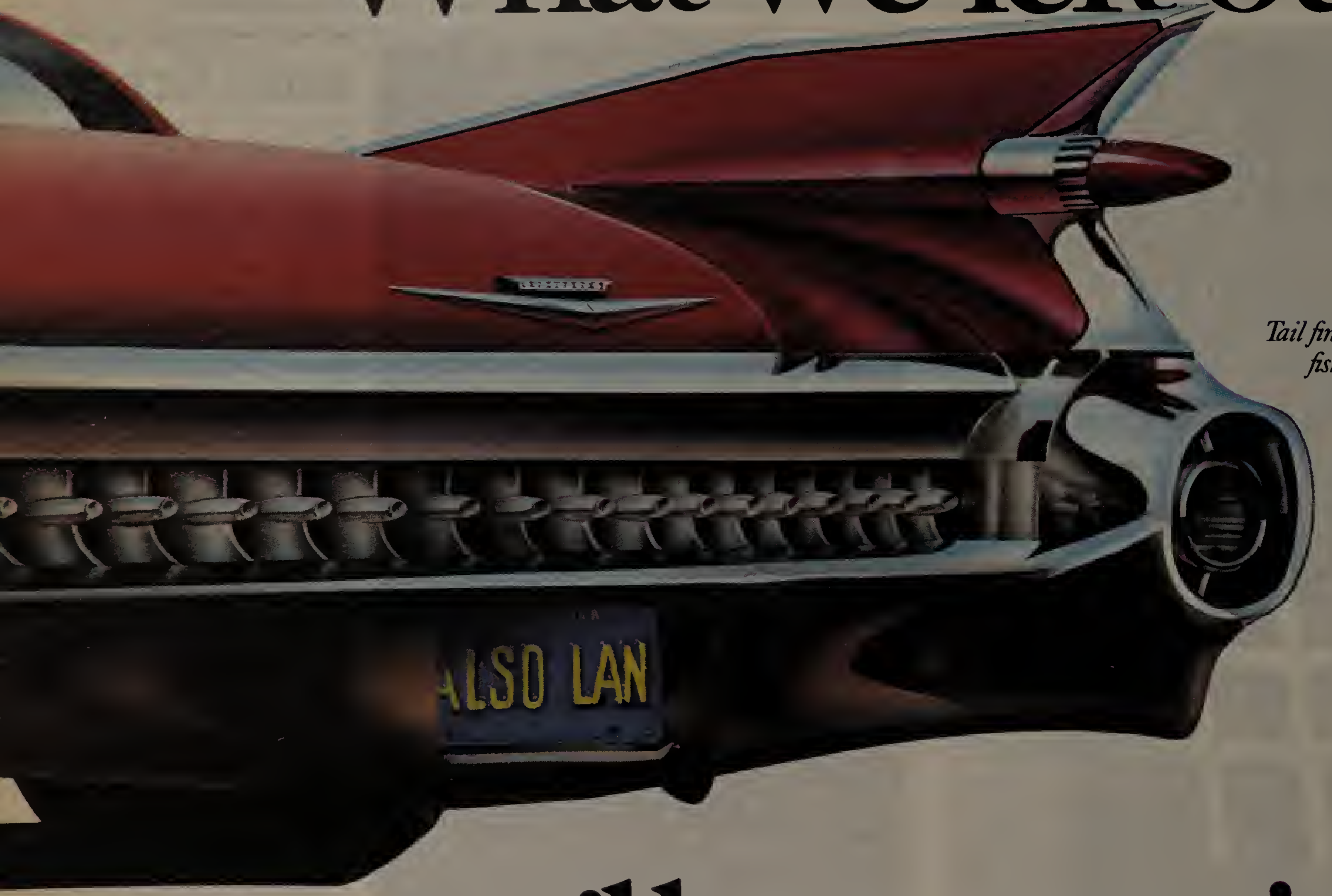

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MANAGEMENT STRATEGIES

MANAGING PEOPLE AND TECHNOLOGY: USERS GROUPS AND ASSOCIATIONS

Worth Noting

> "Since Ireland invested $2.5 billion to upgrade its telecommunications network three years ago, many foreign companies are now considering locating operations there."
>
> **Gus Jones**
> Vice-president
> Ireland's Industrial
> Development Authority
> New York

Association Watch

The **International Communications Association (ICA)** has formed a nonprofit organization, the ICA Foundation, to support telecommunications-related research and education.

As one of its primary objectives, the foundation will funnel tax-deductible donations of money and equipment from companies and individuals to schools and other institutions with communications-related programs.

The ICA Foundation, which is incorporated in Washington, D.C., will be administered from ICA's Dallas headquarters by ICA executive committee members and the group's senior director of education. For more information, contact the ICA at (214) 233-3889.

Starting this fall, **Northwestern University** in Evanston, Ill., will offer a graduate program in telecommunications. The program will offer three degrees. One, a master of science, will examine networking technology, signal processing and data base management; a master of engineering management degree will cover organization theory, system design and analysis; and the third, a master of arts, will study telecommunications policy and industry economics. For more information, contact Northwestern's public relations department at (312) 491-5000. ◼

Report finds IS pros lack verbal skills

By Barton Crockett
Senior Editor

LONDON — A new study has concluded that information systems professionals cannot communicate as effectively as their counterparts in other departments, a problem that can hurt a company's efforts to use technology for competitive advantage.

The study, entitled "Do IS Personnel Fail in Communicating with Business Management?" was prepared by the consulting firm Organization and Technology Research Ltd. (OTR), based here. It found that information systems professionals do not exhibit the personality traits needed to communicate well and thus have problems dealing with end users and working with upper management.

OTR's study is based on psychological tests given to 240 Dutch and English information systems professionals in 20 companies late last year.

The study also analyzes psychological tests given over the past several years to hundreds of information systems managers by the Marlow, UK-based psychometric testing company Thomas International, Ltd.

The wrong stuff

According to Colin Jackson, managing director of OTR, the tests indicate that information systems professionals, as a group, have the profile of poor communicators.

"Good communicators tend to have high levels of influence and dominance and low levels of steadiness and compliance," Jackson said. "The information systems professionals we tested had just the opposite."

Dominance is a measure of how action-oriented an individual is, while influence measures how much a person likes to work with other people, Jackson said. Good communicators almost invariably exhibit both of these traits, he added.

However, the information systems professionals that OTR tested possessed fewer of these characteristics than their counterparts in other corporate divisions, he added.

Information systems personnel tended to exhibit the traits of steadiness and compliance, which are associated with individ-

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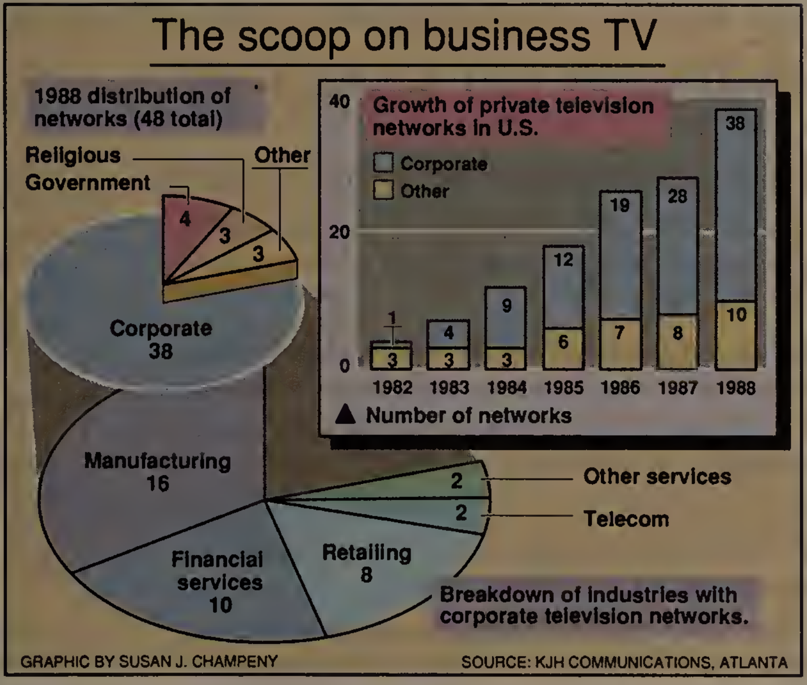
EXECUTIVE BRIEFS

BY BARTON CROCKETT AND WAYNE ECKERSON

The scoop on business TV



GRAPHIC BY SUSAN J. CHAMPENY

SOURCE: KJH COMMUNICATIONS, ATLANTA

I want my BTV. The number of private business television networks in this country is increasing rapidly, although the technology remains out of the mainstream of corporate America.

So concludes a report entitled "Private Network Business Television: A Market Analysis," which was published recently by KJH Communications, an Atlanta-based market research firm.

According to the report, there are now 48 privately owned television networks in the U.S., 38 of which are operated by corporations for their internal use. Sales of private business television network goods and services totaled $120 million last

(continued on page 20)

Nets let users tap foreign labor pools

Networks provide flexibility to locate operations in nations where labor, facilities are less costly.

By Wayne Eckerson
Staff Writer

Communications networks are giving U.S. companies the freedom to set up labor-intensive data processing operations in foreign countries that have an abundant supply of cheap, educated labor.

Companies with large clerical operations, such as insurance companies, are finding it difficult to attract educated workers to fill jobs in such areas as data entry and claims processing, especially now that the U.S. unemployment rate is dipping below 6%, according to officials interviewed by *Network World*.

As a result, these companies are turning to countries such as Ireland and India, which have large pools of skilled, English-speaking workers as well as high unemployment rates. These nations are welcoming U.S. investment and are providing financial assistance to help U.S. firms establish offices there.

Companies that establish such operations abroad ship materials to the facilities and transmit work that has been processed over network facilities to their U.S. operations.

Irish eyes

Cigna Corp., for example, recently announced it will invest $5 million to establish a medical claims processing center in Loughrea in Galway County, Ireland. The cost of building the center, which will employ about 200 workers when completed, will be split by Cigna and the Industrial Development Authority of Ireland, said Melvin Ollestad, senior vice-president of the Employee Benefit Group for Cigna in Philadelphia.

Despite the expense of running a DP operation overseas, Cigna will spend 10% to 15% less to process claims in Ireland than it would in the U.S., Ollestad said.

"Our network allows us to locate claims processing centers in labor markets that will be strong through the 1990s," Ollestad said. "Ireland's 19% unemployment rate, its large number of young people entering the work force and its strong educational system make it an excellent labor base."

Medical insurance claim forms and physician bills will be flown each day by air courier from the U.S. to Shannon Airport in Ireland, then delivered to the Loughrea center for processing. Claim analysts in Loughrea will review each claim, then electronically transmit payment instructions over a 56K bit/sec satellite link to Cigna's data center in Windsor, Conn., where checks will be mailed to customers, Ollestad said.

Cigna joins four other U.S. firms that have established DP operations in Ireland that transmit processed work back to the U.S. via networks, according to Gus Jones, vice-president of Ireland's Industrial Development Authority.

The Dunn & Bradstreet Corp., which began using Irish workers 15 years ago to process subscription orders, employs about 550 people in three separate offices on the Emerald Isle. Other companies employing Irish workers include McGraw-Hill, Inc., The Travelers Corp. and New York Life Insurance Co.

> "Our net lets us locate claims centers in strong labor markets," Cigna's Ollestad said.
>
> ▲▲▲

A passage to India

Ireland is not the only country that has become an attractive spot for U.S. firms to locate DP operations.

For the last three years, Texas Instruments, Inc. has farmed out programming work to about 70 workers located in a high-technology park in Bangalore, India. The programmers, who are writing code for computer-aided design applications, work at engineering workstations that are linked to Texas Instruments' Dallas headquarters via satellite.

Texas Instruments has had trouble finding enough skilled programmers in the U.S. But India has an abundant supply of workers who are well-educated and speak English, said a Texas Instruments spokesman.

"The Indians have a strong background in the theoretical sciences; we give them the opportunity to work on leading-edge applications," the spokesman said.

(continued on page 20)

Nets let users tap foreign labor pools

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New York Life already has a claims processing office in Ireland that employs 55 people, said John Foy, vice-president of individual policy services at the New York-based insurer.

New York Life was attracted to Ireland because it has a large number of well-educated, English-speaking workers who are likely to remain with the company longer than their U.S. counterparts, Foy said. The turnover rate for Americans in claims processing jobs is about 30% per year, but Ireland's high unemployment rate will keep workers at the same job for longer periods of time, Foy said.

Fifty-five workers in an office in Castleisland, Ireland, process medical claims and transmit finished work over a 19.2K bit/sec satellite link to the firm's Clinton, N.J., data center.

"We can maintain a more experienced work force in Ireland, which means better customer service," Foy said.

One other attraction: Ireland recently spent $2.5 billion to upgrade its public telecommunications network with digital switches. "Without the upgrade, we probably wouldn't have considered establishing an office there," Foy said.

Before the migration overseas began, companies were using the long reach of networks to locate DP offices in parts of the U.S. that had an adequate supply of labor. Cigna's first claims centers were located in cities to provide customers with convenient access to claims offices, Ollestad said. But 10 to 15 years ago, the urban labor market began to shrink, while office rental rates skyrocketed. As a result, Cigna consolidated its claims offices and moved them to suburban areas, where workers were more plentiful.

Ten years ago, Cigna had 60 claims offices. Today, the insurance company has 25 offices, eight of which are regional centers located in suburbs of large metropolitan areas such as Los Angeles and Dallas.

"The use of networking technology, such as 800 services and on-line data terminals at our field offices, freed us from having to locate close to our customers. Now, we establish claims offices close to the best available labor supply," Ollestad said. ◼

Report finds IS pros lack verbal skills

continued from page 19

uals who perform best when working alone on detail-oriented tasks, Jackson said.

As a result, Jackson said, many information systems professionals are unable to communicate effectively. That, he warned, could be keeping some companies from using information technology to maximum advantage.

"More and more, information technology is getting out on end users' desks, and companies need someone with good communications skills to explain it," Jackson said. "[Information systems] people who can't do this limit a company's ability to use the technology."

Jackson said managers of information systems departments who lack communications skills may not be able to do an effective job of convincing their company to invest in information systems or explaining how it can be used in innovative ways.

"An [information systems] manager who can't communicate effectively is going to be unable to influence his business colleagues to do what he wants," Jackson said. "He'll find himself left in the cold."

For this reason, Jackson said that managers of information systems divisions promoted from other business units may perform better than managers promoted from within information systems.

"The best alternative is for a company to find an [information systems] person with good communications skills," he said. "But since there is a shortage of these people, the next best alternative may be to move someone over from another business unit." ◼

Executive Briefs

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year, more than double 1987 figures, the report said. This figure should surpass $230 million by 1990 and $650 million by 1995, it added.

According to Kathleen Hansell, a researcher who helped put together the report, the driving force behind the increase is Ku-band satellite service. While the total installation and operational costs for Ku-band and C-band satellite television networks are roughly the same, Ku-band satellite dishes are much easier to manage, she said.

Hansell also said Ku-band satellite networks offer better transmission quality than C-band. Further spurring the development of business television is growing interest in using business television networks to sell products to customers. "About 7% of total broadcast time is devoted to this," she said. "But over time, this will grow."

Mistaken for a vegetable? London-based Barclays plc, one of the world's largest banks, installed a new spell-checker application on its internal messaging system that didn't recognize the bank's name.

Every time a Barclays worker used the new application on internal memos, it highlighted the word Barclays and offered the nearest equivalent in its lexicon: broccoli.

The blunder was picked up by several London newspapers and was even aired by a Boston rock radio station.

To avoid repeating the broccoli misnomer, Barclays electronic mail users added Barclays to their spell-checker dictionaries. ◼

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Worth Noting

See inside for:

- A board from CrossComm that provides links between SynOptics twisted-pair LattisNet Ethernets.
- Bytex's stand-alone device for testing lines linked to remote matrix switches.
- A fiber-optic board from TCL designed to connect Ethernet hubs.

First Look

Package lets fax users access PC files

SpectraFAX Corp. recently released a personal computer-based software and hardware package that lets facsimile machine users access files stored on personal computers. The **Personal Link** board and **Special Request** software installed on a personal computer support Digital Communications Associates, Inc. and Intel Corp.'s Communicating Applications Specification.

With the products, a CCITT Group III facsimile machine user can dial into the personal computer from a telephone attached to the facsimile. A series of voice prompts inform the remote user which telephone keypad buttons to push to instruct the personal computer to transmit a document to the facsimile machine.

One application for Special Request allows salespeople on the road to call in to a personal computer at their home office for updates. Those updates can include the status of a customer's order, price changes and product information. Future applications will let businesses include in their advertisements a facsimile number that users can call 24 hours a day to get product information.

The Personal Link also lets personal computer users send documents to remote facsimile machines or to other personal computers equipped with Personal Link, the Intel Connection CoProcessor

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Speedy DSU sends asynch data at 57K

By Jim Brown
New Products Editor

RESTON, Va. — Digital Access Corp. recently introduced a product that enables users to transmit asynchronous data at up to 57.6K bit/sec over dial-up digital lines.

The company's Switched 57 product consists of a stand-alone data service unit (DSU), which is attached to a user's existing IBM Personal Computer or compatible, and a line interface board that is housed in the user's D4 channel bank. The product is targeted at users with T-1 access to such central office-based services as AT&T's Accunet Switched 56.

With Switched 57, users can establish Personal Computer-to-Personal Computer or Personal Computer-to-asynchronous host connections using switched 56K bit/sec data services. This is possible without synchronous communications adapters.

The Switched 57 DSU attaches to the Personal Computer via RS-232 cable. The DSU acts as a limited-distance modem to link the Personal Computer via two unshielded twisted-pair wires to a channel bank located up to three miles away.

A line interface board installed in a D4-compatible channel bank packages the asynchronous data in Digital Access' proprietary T-0 synchronous format. The T-0 format basically removes the start and stop bits used in an asynchronous bit stream and inserts the remaining data in a synchronous packet. The line interface board then stuffs that packet into a 64K bit/sec DS0 channel on a T-1 line that links the customer site to a central office.

A line interface board installed in a channel bank at the receiving site reassembles the original asynchronous bit stream, which is forwarded to the DSU attached to the receiving Personal Computer or asynchronous host.

The Switched 57 DSU and Switched 57 line interface board are sold together for $2,500.

Digital Access also has a comarketing agreement with Hubbell, Inc./Pulse Communications Division. Under the agreement, Digital Access will resell Pulse Communications' D4-compatible channel bank for $6,000 and Pulse Communications will resell the Switched 57 product.

For more information, contact Digital Access at 11501 Sunset Hills Road, Reston, Va. 22090, or call (703) 481-6900.

Equinox PC LAN needs no server or adapter boards

By Paul Desmond
Staff Writer

MIAMI — Equinox Systems, Inc. recently introduced a low-end local network for IBM Personal Computers and compatibles that requires no file server or adapter boards and operates over twisted-pair telephone wiring.

Equinox's new Alternet network lets as many as 16 DOS-based personal computers exchange files and share printers, modems and host computer ports at 19.2K bit/sec. Each device is attached to the network using an adapter that lets its communications port accept an RJ-11 interface from a twisted-pair telephone wire.

Alternet consists of the Alternet hub, which can accept as many as eight personal computers or peripherals, and the Alternet network program, which is a two-part software package, said Doug Noble, marketing manager at Equinox. One portion of the Alternet program runs on a single personal computer in the network and is used to configure the net.

The second part runs on each networked personal computer and provides the user with a menu that details what options are available, such as the printers or modems that are on-line, as well as what other personal computers are connected to the network, Noble said.

Two Alternet hubs, located up to 5,000 feet apart, can be linked via twisted pair for a maximum network capacity of 16 personal computers or peripherals. Attached devices can be located as far as 300 feet from the hub.

Alternet has a print spooler that captures print output on the personal computer's hard disk. This frees the user to continue working while data is transferred from the hard disk to the printer, Noble said. In addition, users can monitor print jobs in progress, rearrange the order of or cancel jobs and select alternate printers.

The network also supports links to asynchronous hosts, such as minicomputers from Data General Corp., Digital Equipment Corp., Hewlett-Packard Co. or Prime Computer, Inc. Users vie for host access on a contention

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ICL takes wraps off 3 ISDN workstations

The microcomputer packages support integrated voice and data over Basic Rate Interface lines.

By Jim Brown
New Products Editor

STAMFORD, Conn. — International Computers Limited's (ICL) North America division recently unveiled three Integrated Services Digital Network-compatible integrated voice/data workstations.

The company also released the ISDN Information Integrator, a hardware and software package that enables users to upgrade existing IBM Personal Computer ATs or compatibles to ISDN workstations. The package is designed for microcomputers running Microsoft Corp.'s OS/2 Standard Edition 1.1 with the Presentation Manager user interface.

ICL's three ISDN Workstations consist of an ICL microcomputer with a built-in telephone and an ISDN interface board that works with the Basic Rate Interface. The Basic Rate Interface supports two 64K bit/sec B channels and one 16K bit/sec D signaling channel. The products work with ISDN services supported by AT&T 5ESS, Northern Telecom, Inc. DMS-100 and Siemens AG EWSD central office switches.

Each ISDN Workstation comes with OS/2 Standard Edition 1.1 and Presentation Manager. The integrated analog telephone supports 22 programmable feature access keys. The phone is connected via an ICL proprietary link to a microcomputer-resident board that digitizes voice at 64K bit/sec.

The ISDN Workstation enables users to transmit both voice and data simultaneously over a Basic Rate Interface line.

Out with the old . . .

The new ISDN Workstation models replace ICL's existing ISDN Workstation, which consists of an ICL microcomputer that runs MS-DOS Version 4.1, a customized version of the MS-DOS operating system. MS-DOS 4.1 enables users to run one application in foreground and an unlimited number of applications in background mode.

The new ISDN Workstation Model 30 is based on an Intel Corp. 80386 microprocessor with 4M bytes of random-access memory, expandable to 16M bytes, and six expansion slots. ICL's ISDN Workstation Model 10 and Model 20 are based on Intel's 80286 microprocessor with 5M bytes of RAM each. The Model 10 has a single expansion slot, while the Model 20 has three expansion slots.

The ISDN Information Integrator includes a Personal Computer AT-resident ISDN interface board, software and a telephone. The telephone is linked to the ISDN interface board via an ICL proprietary link, and software enables the Personal Computer AT to access ISDN services.

Each ISDN Workstation and ISDN Information Integrator includes ICL's ISDN Phonebook Software, a package that enables users to build a data base containing the name, telephone number and other personal information about frequently called people.

The ISDN Workstation enables users to transmit both voice and data simultaneously.

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This software works with ISDN's automatic number identification service to display a screen that gives users information about the party who is calling. The Phonebook Software also enables users to make calls by typing in a person's name.

All the products also support the company's microcomputer-resident ISDN Voice and Data Call Management Software, which lets users access ISDN calling features and functions.

For example, the software enables the microcomputer to display the telephone numbers of the 16 most recent incoming or outgoing calls and to support an unlimited number of speed-dial numbers. The software also allows users to connect to various hosts by selecting from a menu a file that contains the proper communications parameters.

ICL also provides support for the CCITT V.120 Rate Adaption Protocol in its new products. This standard lets ISDN workstations communicate with non-ISDN devices supported by slower speed digital data lines.

In addition, ICL released an improved version of its ISDN Desktop Conferencing Software. The upgraded version, developed with help from Develcon, Inc. of

(continued on page 22)

Cintech, Complementary Solutions introduce call-accounting packs

New version of Cintech's Tele-Series has long-haul rate tables.

By Wayne Eckerson
Staff Writer

Cintech Tele-Management Systems, Inc. and Complementary Solutions, Inc. recently released enhanced versions of their call-accounting software packages, which help users track calling patterns and billing charges.

Cintech introduced Version 3.0 of its Tele-Series software for IBM-compatible personal computers. The new version has rate tables containing the charges carriers assess for long-distance calls. Cintech also introduced a version of its call-accounting software that runs on Digital Equipment Corp. VAXes using the VMS operating system.

With the enhancements to Version 3.0, users can now compare the rates charged by long-distance carriers serving their areas. Previously, users had to load rate tables into their personal computers to determine carrier charges.

The software also supports a new feature that allows users to generate reports on individual trunk lines instead of on trunk groups. The reports determine whether a trunk line is overused, underused or out of service.

The new Tele-Series software for VAXes has the same features and uses the same formats and structure as the DOS-based Tele-Series software. This allows companies to integrate call-accounting data generated by personal computers and VAXes into a single report.

Both the DOS and VAX VMS versions of the software come in either a business or a professional package. The professional package contains a rebilling application that allows users to keep track of the time they spend speaking with each client on the phone for billing purposes. The business package does not contain the rebilling application.

Complementary Solutions added several new features to its personal computer-based call management software called TeleMate. The software can now calculate phone charges for companies that use software-defined networks and virtual banded WATS services.

For users of software-defined networks, TeleMate calculates charges for calls dialed using internal four-digit numbers in addition to seven- and 10-digit numbers.

In virtual banded WATS, TeleMate identifies the rates for the bands supported by each trunk provided by each carrier, as well as the distance of each call.

In addition, TeleMate automatically processes call information when its host personal computer is not being used. When the computer is inactive, TeleMate calculates call charges according to carrier rate tables and determines the destination of each call.

TeleMate also enables users to program the software's host personal computer to automatically print call-accounting reports on a predetermined schedule. This keeps users from having to remember to process calls or print reports.

TeleMate does not require a dedicated personal computer, buffer boards or concurrent DOS. TeleMate uses a special program that allows personal computer users to work on other programs while phone activity is being monitored. TeleMate runs on any MS-DOS-compatible personal computer with a fixed disk.

Pricing

Pricing for the Cintech Tele-Series software ranges from $950 to $3,000 for the DOS version and $4,500 to $8,000 for the VAX VMS version. Both versions are available now.

TeleMate is priced from $595 to $3,600 and is available now.

Cintech Tele-Management Systems can be reached by writing to 411 Oak St., Suite 202, Cincinnati, Ohio 45219, or by calling (513) 861-2000. Complementary Solutions can be reached at 4470 Chamblee-Dunwoody Road, Suite 202, Atlanta, Ga. 30338, or by calling (404) 454-8033. ◼

ICL takes wraps off 3 ISDN workstations

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Dublin, Calif., lets eight ISDN Workstation users view a single screen of data or an image while simultaneously talking on the phone. The screens of all the users in the conference call are automatically updated when any one in the conference call makes a change.

To establish a conference call, users must dial into a port on a central-site Develcon data switch. Previous versions of ISDN Desktop Conferencing Software supported point-to-point links only.

Lastly, the firm released an application program interface (API) that enables developers to write data applications that run on ICL's ISDN Workstation hardware. The company already offered an API supporting development of voice applications.

A fully configured ISDN Workstation Model 30 costs $10,500. The prices for the Model 10 and Model 20 range from $6,000 to $7,000. The ISDN Information Integrator upgrade kit is priced at $1,695.

ICL can be reached in writing at 777 Long Ridge Road, P.O. Box 10276, Stamford, Conn. 06904, or by calling (203) 968-7200. ◼

Pacific Bell Introduces Advanced
Of An Automatic Transmission Is

In 1939, an Oldsmobile rolled out of the factory with an interesting new feature: a device that instantly changed gears to meet the needs of the driver. That device was called an automatic transmission. And the automobile was never the same.

In 1989, Pacific Bell is offering its customers a new kind of data transport service. It's called the Advanced Digital Network; a data transport service that can instantly change speeds to meet the needs of your business. And digital networks will never be the same.

The Advanced Digital Network was developed by Pacific Bell to combine the best features of our existing digital transport services—features like exceptional reliability and transmission quality—with the affordability and flexibility of analog systems.

But the most important new benefit of the Advanced Digital Network is *control*.

Advanced Digital Network gives every business maximum control of its network. Not only have we added useful new transmission speeds such as 19.2 and 64kbps, but

A PACIFIC TELESIS COMPANY

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First Look

continued from page 21

board or Hayes Microcomputer Products, Inc.-compatible modems.

The Personal Link costs $995, and the Special Request software starts at $3,000.

SpectraFAX Corp., 209 S. Airport Road, Naples, Fla. 33942, or call (813) 643-5060.

Board lets CrossComm bridges link LattisNets

CrossComm Corp. recently announced a board that enables its Integrated Local-Area Network (ILAN) family of Ethernet bridges to provide connections between SynOptics Communications, Inc. twisted-pair LattisNet Ethernet local nets.

The **Twisted Pair Ethernet Bridge** board includes an RJ-45 interface and resides in CrossComm's ILAN bridge. One ILAN bridge can support up to four Twisted-Pair Ethernet Bridge boards, thus connecting up to four LattisNet local nets.

The new board adds to CrossComm's existing ILAN interfaces, which support both thick- and thin-wire coaxial cable, twisted-pair Starlan and fiber cable, as well as remote T-1 and 56K bit/sec lines.

ILAN bridges are media access control layer bridges that support the Spanning Tree protocol. The bridges provide physical link layer conversion to enable, for example, devices on a coaxial cable net running one net operating system to communicate with devices on a twisted-pair net running the same operating system.

The new Twisted Pair Ethernet Bridge board is available now for $1,500.

CrossComm Corp., P.O. Box 699, Marlborough, Mass. 01752, or call (508) 481-4060.

Unit tests lines linked to remote matrix switches

Bytex Corp. recently introduced a stand-alone device that enables central-site personnel to monitor data lines attached to Bytex matrix switches in remote, unstaffed data centers.

The **Remote Test Access Link (RTAL)** lets central-site users test the actual user data flowing across lines attached to remote Bytex Autoswitch or Unity matrix switches. This eliminates the need for dedicated test trunks between sites, duplicate test equipment in each site and remote-site operators, according to Bytex.

Users must attach an RTAL to the monitor and test port of the central-site matrix switch and each of the remote-site matrix switches. The monitor and test port of the Bytex switches supports either an RS-232 or V.35 physical interface. Used with RS-232, the RTAL supports speeds up to 19.2K bit/sec between sites. Used with V.35, the RTAL supports speeds up to 56K bit/sec between sites.

At the central site, users can attach test equipment such as data scopes and line performance measurement equipment to the matrix switch. They can then test the data the RTAL transmits to the monitor and test port.

Each RTAL costs $5,750.

Bytex Corp., Southborough Office Park, 120 Turnpike Road, Southborough, Mass. 01772, or call (508) 480-0840.

TCL uses fiber to link its Ethernet hubs

TCL, Inc. recently announced a board that supports fiber-optic connections between its Ethernet hub concentrators.

TCL's **Model 2110-BFO** fiber-optic board resides in the company's Model 2110B concentrator hub and enables users to build a backbone Ethernet by connecting hubs via fiber. Up to 14 desktop devices such as personal computers can be tied to a hub via coaxial cable or twisted-pair wire.

Users can attach desktop devices to the company's existing interface boards, which support two RS-232, RJ-45 or coaxial cable physical interfaces each.

Like all TCL Ethernet products, the Model 2110-BFO is compatible with Ethernet Versions 1 and 2 as well as the IEEE 802.3 Ethernet standard. The new board includes LEDs that indicate power status, packets received, packets transmitted and collision conditions.

The 2110-BFO board can be connected to a similar board in a 2110B hub up to half a mile away. Users can interconnect up to 32 2110Bs via fiber cable as long as the overall distance does not exceed 2½ miles.

Available now, the 2110-BFO lists for $648.

TCL, Inc., 47621 Westinghouse Drive, Fremont, Calif. 94539, or call (415) 657-3800. ◘

Equinox PC LAN needs no server

continued from page 21

basis, Noble said. Similarly, Alternet can be used to provide access to one or more modems that are used to access a remote host.

Alternet gives Equinox a low-end network offering. The company also sells the DS-5 and DS-15 switches, which can link from 24 to more than 1,000 devices, Noble said.

"We see [Alternet] as appealing to small businesses and individual work groups that don't want to be connected to a corporate network," Noble said.

The base Alternet package, which includes one Alternet hub and two personal computer adapters, costs $995. Additional adapters and wire segments range from $7 to $15 each.

For more information, contact Equinox at 14260 S.W. 119 Ave., Miami, Fla. 33186 or call (800) 328-2729. ◘

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also error control capabilities that are unmatched by any other existing network. In addition, we've provided a variety of network management features that make it possible to perform diagnostics and help isolate problems as they arise.

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You might ask yourself, "How much is all this control going to cost me?" Our answer is that Advanced Digital Network costs substantially less, in most cases, than existing digital services.

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It's just one more way we're working hard to make *your* work easier.

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OPINIONS

SYSTEMS INTEGRATION

BY JEFFREY HELD

To stay in the game, new players must take risks

These days, it seems that every player in the telecommunications industry wants to get into systems integration. Local exchange carriers, long-distance carriers, computer companies, T-1 multiplexer manufacturers and even modem vendors can't wait to join the fray. But ask these "integrators" for a definition of systems integration and you will get radically different answers from each. Something is wrong here, and before the current systems integration craze is over, some of these firms will lose a lot of money.

Definitions of systems integration abound; most are rather self-serving. True systems integrators combine the most appropriate products and services to fit a user's needs; they also take technical and financial responsibility for successfully implementing the system. Computer firms, especially large ones, claim to be systems integrators simply because they bid on procurements that are less than 100% based on their own product lines. However, large computer firms rarely bid on systems composed of less than 80% of their own equipment. This isn't systems integration — it's hardware sales.

> Regulated carriers that play the systems integration game are in for a rude awakening.
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Risk-taking is an essential element of systems integration with which most potential players haven't yet come to grips. Regulated carriers are eager to get into the business, but few of them are used to taking risks. They are not liable for delays, inadequate system performance, outages or contingent liabilities. They aren't even able to offer a true price guarantee; their rates are ultimately determined by either the Federal Communications Commission or their state public service commission. Tariffs define exactly which liabilities and remedies are available to users. In fact, the regulated carrier business is virtually risk-free. Regulated carriers that play the systems integration game are in for a rude awakening.

True systems integrators, such as Electronic Data Systems Corp. and Computer Sciences Corp., routinely lay out huge sums in presale consulting, design and proposal development efforts. Most systems integration contracts require stiff financial penalties for nonperformance and contingent liabilities, which hold the integrator responsible for business losses caused by nonperformance. This, in some cases, could be greater than the magnitude of the contract itself.

Finally, systems integration contracts, most of which are with a government agency, are often fixed in price and competitively awarded, with price being a major criterion. Thus, the strategy adopted by many successful integrators is to go after long-term contracts, buy into the front end of the contract and make up for it on the out years. This requires the financial strength and the will to tolerate million-dollar shortfalls during the early years of the contract in order to eventually make money. To be profitable requires a long-term commitment.

Being a successful integrator takes many different attributes, including technical skills, business acumen and financial strength, but most important, it requires a willingness to take risks. Finding all these attributes in one firm is rare, which is one reason why there are relatively few true systems integrators today.

New players are getting into a high-stakes poker game. A lot of them are going to end up wearing barrels.

Held is a principal with Network Strategies, a Fairfax, Va.-based practice of Ernst & Whinney that provides telecommunications consulting services.

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EDITORIAL

FCC's Tariff 12 ruling leaves key question unanswered

The Federal Communications Commission has finally issued a decision on the narrow question of whether AT&T should be allowed to offer custom networks through Tariff 12, but it continues to tiptoe around the real issue facing the telecommunications industry.

Is AT&T a dominant carrier or not? Does a 68% share of market give a company the power to drive competitors out of business or to raise prices without losing market share? If American Airlines, Inc. carried 68% of the air travelers in the U.S. (which it doesn't), would we be concerned that it could drive out smaller airlines and, consequently, limit customer choice?

If AT&T is a dominant carrier, then the FCC has a legitimate responsibility to ensure that the carrier doesn't discriminate between users or use its market bulk to crush the competition. If it isn't, let's stop making AT&T file a tariff every time it wants to sneeze and let the fully competitive marketplace work its magic.

In its Tariff 12 decision, the FCC found the most narrow legal point on which to reject the tariff. The commission endorsed the concept of Tariff 12 but rejected current Tariff 12 deals because they contain provisions that make it difficult for all users to get the same deal.

FCC officials can now cheerfully report to Congress that the agency stood up to the communications giant, thereby hoping to cool down the confrontational environment that exists between the FCC and legislators.

The FCC failed twice before — in proceedings initiated in 1983 and 1986 — to resolve the issue of AT&T's market status.

The reason, many Washington, D.C. critics say, is that at some point in those proceedings, it became clear to FCC and AT&T officials that the agency was about to reach the *wrong* decision — that AT&T is dominant. Such a decision would have hampered the efforts of former FCC Chairman Mark Fowler and his successor, Dennis Patrick, to deregulate AT&T.

> The FCC has finally been worn down by pleas that it fulfill its leadership role.
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Those less cynical say that determining a company's market power from its size alone is complicated. In some markets, such as private lines for business customers, AT&T seems to face stiff competition from flourishing competitors. However, in the 800 market, AT&T retains almost total control.

If AT&T doesn't have uniform market power, is it possible to deregulate the carrier on a market-by-market basis? The FCC looked at this question but couldn't find a practical way to segment a market full of highly interconnected services. It would require that network facilities be apportioned or accounted for according to whether they carried competitive or noncompetitive services.

Apparently, the FCC leadership has finally been worn down by strong pleas from both inside and outside the agency that it fulfill its leadership role in the industry. FCC Commissioner Patricia Diaz Dennis has been particularly vocal about the need to determine AT&T's status in the marketplace in order to design appropriate regulation.

At this month's FCC meeting, the commission decided it would once again venture into the murky market waters and investigate where AT&T stands, which should be good news for everyone. AT&T and its two main rivals, MCI Communications Corp. and US Sprint Communications Co., have all said they would welcome an inquiry into AT&T's market status.

The bad news is that we will all have to endure a protracted proceeding, pages of interminably dull mathematical formulas from economists, heated exchanges between the attorneys of those affected and, at the end of it all, we may still be left without a decision from the FCC. But at least the FCC is moving in the right direction this time. Let's hope this won't be Strike 3.

OPINIONS

ISDN

BY MARY JOHNSTON

Users should be wary of new solutions to old problems

The evolution of new technologies affects all sectors of the communications industry.

Users adopt more cost-effective and efficient technologies to lower their cost of doing business and thereby stay competitive with others in their market. Manufacturers adopt improved production methods to produce equipment less expensively and more reliably, again motivated by competitive pressures.

Researchers incorporate recent innovations into their projects to avoid duplication of past discoveries and to allow breakthroughs. Marketing organizations invent new sales strategies in response to fundamental changes in the marketplace, users' expectations and competitor initiatives.

The mistake comes in implementing a technology simply because it's new without considering whether it can actually improve current conditions.

In the communications networking environment, Integrated Services Digital Network appears to be suffering from this syndrome: Users are consistently presented with a new and unproven technology in a form suitable for past situations but totally inappropriate for their current complex environment.

The promise of ISDN standards is the virtually transparent networking of voice, data and image services using a limited set of standard interfaces and protocols. Yet the approach many major ISDN purveyors take is geared almost solely to using the technology as a voice communications enhancement, ignoring the implications for improved data communications, more integrated network management and improvements to the corporate budget's bottom line.

Users are rightly skeptical that a technology presented within such a narrow framework will actually fulfill the broad range of requirements confronting them.

As private branch exchange, central office and long-distance vendors are just beginning to understand, selling ISDN successfully will require a total change in the psychology underlying the marketing and application development approaches.

Users are unlikely to buy ISDN purely as a means of providing call-waiting and automatic number identification information. Nor will they be convinced by the benefits of eliminating coaxial cable for support of casual data users in a local environment.

> Selling ISDN successfully will require a total change in psychology.

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Users are looking for technologies that are effective business tools, supporting a broad range of requirements profitably.

Users interested in investing in ISDN must make a strong case to their senior management that ISDN is more than just a better mousetrap for the internal corporate communications network; they must show that it is a strategic business tool that can be used to market the corporation to its employees, distributors and customers.

For example, a widely dispersed corporation might not invest in ISDN to provide local data services via Centrex, but that company might take the plunge if the technology is positioned as a tool for distributing electronic data interchange information among a broader base of customers and suppliers.

To succeed as a business tool, rather than as a voice communications adjunct, ISDN applications must be developed and implemented in terms of their contribution to profits, customer and employee retention, and competitive market position.

Users will need significant applications and implementation support from their vendors if these ambitious goals are to be met. This implies the need for vendors to totally rethink their marketing and customer support strategies.

Users desiring successful implementation of ISDN capabilities should seek out vendors that demonstrate an appreciation for this new psychology for technology sales, marketing, development and support.

Users should choose vendors that recognize that ISDN implies a fundamental, rather than incremental, change in the communications equation and then develop a business application-oriented approach to solving their customers' problems. These vendors are most likely to support the new technology's installation and to provide the attendant development and support activities.

Just as users traditionally buy computers because of specific application requirements and vendor track records for development and support, so should ISDN purchases be driven by the expected payback of the ISDN-based application and the quality of the support services.

The traditional voice equipment and service vendors attacking the ISDN sales dilemma are in much the same position as the U.S. automobile industry was during the early days of the 1973 to '74 gas crisis. Their products and packaging are appropriate for a different era.

Just as Detroit, following the success of Japanese imports, recognized that small, fuel-efficient cars were indeed in demand, so must ISDN manufacturers realize that they are dealing with a new marketplace and new user requirements, both business and technical.

The jury is still out on whether these companies can adjust their sales, development and support strategies rapidly enough to achieve user acceptance and commitment to ISDN. Many users are wondering whether Fiber Distributed Data Interface, broadband and frame relay switching, internets of local networks and Open Systems Interconnection protocols will leave any room for ISDN.

ISDN vendors still have time to succeed by showing users that they understand the complex environment surrounding networking in the 1990s.

In the meantime, users should be wary of committing to technologies and vendors that can't demonstrate a solid understanding of users' broad technological and business requirements. ▣

Johnston is a principal with Northeast Consulting Resources, Inc., a Boston-based consulting collaborative specializing in management, communications and information strategies.

TELETOONS

BY FRANK AND TROISE

"Buy from a reliable vendor"... I said.. "Read the documentation," I said... but noooo...

LETTERS

The U.S. morass

Thank you for running my opinion column "Ignorance and incompetence plague users and vendors" (*NW*, Jan. 30). Quite a few users and communications operators took the time and effort to respond.

An anonymous writer from Chicago accused me of being "one of those typical engineers who hates marketing people and whose incompetence has allowed the Japanese to gain ascendancy over the U.S." Here is my response.

Dear Anonymous: I was for many years part of General Electric Co.'s marketing effort, have been a manager of marketing, have marketed and sold for over 30 years all over the world, and have to market and sell Progress Engineering's services every day. Do you suppose that our clients hunt us down and beg us to get them out of the trouble "peddlers" such as yourself have gotten them into?

Furthermore, the Japanese grabbing a large part of the U.S. market has been a man-

(continued on page 39)

Network World *welcomes letters from its readers.*

Letters should be typed, double-spaced and sent to Editor, Network World, *375 Cochituate Road, Box 9171, Framingham, Mass. 01701.*

Letters may be edited for space and clarity.

"**NEVER TRY TO TEACH A PIG TO SING.** It frustrates you and annoys the pig." Network managers spend a great deal of time trying to make telecom lines not only sing, but sometimes perform arias. In an opinion column, you can tell *Network World* about the problems you've encountered.

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If you'd like to write a column, contact Steve Moore, features editor, *Network World,* Box 9171, Framingham, Mass. 01701, or call (508) 820-2543, ext. 732.

The big bang theory

Turner Broadcasting Systems' voice and data communications staff work to keep one step ahead of the company's explosive growth.

CONTINUED FROM PAGE 1

in-house networking architecture to connect the 700 personal computers — from Apple Computer, Inc. and IBM — with a Prime Computer, Inc. minicomputer, a Parallel Systems, Inc. fault-tolerant supermicrocomputer and an IBM 3081 mainframe.

All the while, the department has the day-to-day task of supporting TBS broadcast operations, especially the CNN and HNN worldwide news-gathering operations. These offer such challenges as setting up voice and data links for two weeks in Japan and China or getting T-1 links into the Soviet Union.

Flexing operational power

Fred Gamel has the challenging task of overseeing the telecommunications operations at TBS. As telecommunications manager, Gamel is responsible for supporting all the communications needs of all corporate entities under TBS.

"When I took this job, the first question I asked was, 'When am I gonna get bored?' " Gamel recalls, adding dryly, "Been terrified a few times, but never bored."

Gamel and his staff welcome the constant challenges. In fact, he credits the electric atmosphere with keeping the good people from getting away.

"We've got probably the lowest turnover in the company," he says. "Everybody stays challenged."

The MIS/telecommunications department is officially divided into several entities, but there is a great deal of overlap in group activity. The entire department is under the aegis of MIS Director Mike

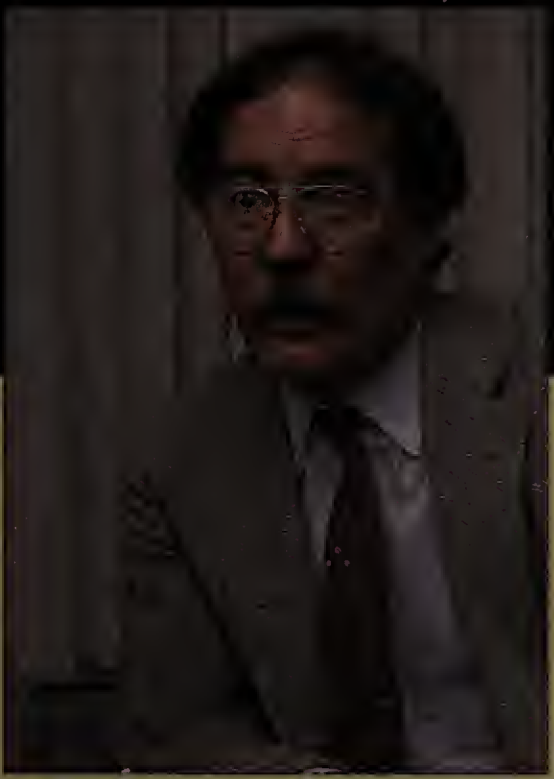
(continued on page 28)

> ***"When I took this job, the first question I asked was, 'When am I gonna get bored?' Been terrified a few times, but never bored."***
>
> *Fred Gamel*
> *Telecommunications manager*

PHOTOGRAPHY ©1989 CHUCK ROGERS

"It happened so fast . . . I don't know how we got here."

Gina Gershon
Assistant data center operations manager



"We have such a hybrid environment; it's one of the most exciting networks you could ever imagine."

Jody Johnson
Data networking coordinator

(continued from page 26)

Johnson, who's been with the firm since early 1988.

Within the department are the data center operations group, an applications group and a personal computer support group. Allied with these are the newsroom computer and technical support groups.

Gamel's telecommunications gang supports them all.

And now, the news

Perhaps the most important group at TBS is the news operation. According to Gamel, the newsroom focus is what makes TBS' computer and communications functions different from the rest of the world.

"This operation is not just a standard application of an MIS group, because of the newsroom environment," Gamel says. "The newsroom computer group and technical support people are pretty dedicated to that because it's so big. Their phones and newsroom terminals are their lifeblood. What they do is phenomenal."

"Our challenges are big," adds Gina Gershon, the assistant data center operations manager. Gershon is responsible for supporting the data communications needs of the news operation.

"Sometimes [the news staff] can't tell us what they're going to do; then two weeks prior to an event, they'll tell us they need a T-1 line," she explains. Election and postelection news coverage illustrate some of the technological and organizational growth.

"Our operations have gone from trucking a few terminals and a concentrator or a baby net in a box to Gina's folks having a complete flyaway data system dedicated to CNN," Gamel says. "They have Anvil cases full of stuff. Just load 'em up and wheel out the appropriate number of terminals for an event."

A flyaway telephone system has also been developed, he adds, based on "the biggest Merlin that AT&T makes. It's boxed and ready to go.

"We costed it out," Gamel says, explaining the flyaway system development and justification. "Short-term telephone system rental costs were backbreaking. We did a cost study and showed the powers that be that by the time they were halfway through the New Hampshire primary, it would be paid for. Now they've used it so many times, if it was in the military, it'd have jump wings."

From the field

Growth in support for TBS field operations — for both the news and sales offices — is a good example of company and departmental growth.

"Back in 1982, we had three dial-up lines," Gershon says. "That's how our smaller bureaus and the Los Angeles bureau got into the system. If the lines were busy, they would call us, ask who was on the line, and say, 'Please tell them to hang up so we can send.' That was our networking. We had dedicated direct lines to New York and Washington, D.C." Times have changed.

"We've gone through several upgrades," Gershon explains. "We now have [9.6K bit/sec] lines to New York, D.C. and L.A., and a multidrop to the smaller bureaus." She lists 32 devices in New York, 24 in Washington, eight in Los Angeles and five smaller bureaus — Detroit, Dallas, Chicago, Miami and San Francisco — with single drops.

> "Back in 1982, we had three dial-up lines," Gershon says. "We've gone through several upgrades. We now have [9.6K bit/sec] lines to New York, D.C. and L.A., and a multidrop to the smaller bureaus."

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"So I'm up to about 50 connections outside Atlanta," Gershon says. The multidrop line operates at 4.8K bit/sec, the dedicated lines at 9.6K bit/sec. Field reporters operate over standard dial-up lines with modems.

The support function is not one of either data or telecommunications alone, she adds, but one of data communications.

"Every time I have to work on a data line, I work on it, but I call the telecom department," she says. The telecommunications department supports every company news bureau and sales office; there's a sales office just about everywhere there's a bureau. It's not unusual for them to deal with two bureaus moving at the same time.

Evolutionary witness

Gershon joined the company in 1981 as a computer operator for CNN and has participated in much of the explosive evolution of the company and its computer and communications support.

"When I started, we had a supermicro and three Apple IIs," Gershon remembers. "The newsroom system was on the supermicro, and the Apple IIs had nothing to do with the supermicro system. As PCs started taking off, the duty to manage those fell into our department."

There wasn't always the departmental overlap there is today. "Telecom was here, but real separate; it was a tiny little department," she says. "Then the company took off and grew.

"It happened so fast, there was so much that the computer people had to catch up on. I don't know how we got here," Gershon says.

"It was a kind of culture shock, I guess," says Gamel, who credits Johnson with setting up the organizational structure that could best support everything. "When Mike came on board as MIS director, he melded together as much of the two as he could to get the uniformity and set up some standards for the company," he explains. "But he also left flexibility in the various work centers."

"On a remote, our guys can cover one another," Gershon adds. "During the [first shuttle launch after the Challenger disaster] remote, the telecom guy was calling me as much about my computer problems as my guy down there was. When you've got all these remotes, you generally work 12- to 14-hour days and people are generally in two or three trailers, so support comes from whoever happens to be there.

"Being one large department helps to facilitate all that," she says. "And we want to go further with it," including crossover training between groups. "We get hit with things all at once, and [both groups] can't always spare a person to send to Moscow or China when we've got a move going on in Chicago at the same time."

News on the move

The department's flexibility was demonstrated in 1988, when it moved across town to its new home, CNN Center. CNN Center is a twin-towered high-rise office complex in downtown Atlanta, containing the Omni Hotel and overlooking the Atlanta Omni sports and exhibition hall next door.

The towers have been home to TBS since 1987, when the administrative, communications and computer staffs moved in from their old three-story building next to the freeway. The CNN and HNN staffs moved in a year later. The story of the move is another good example of the conditions under which the department works.

> Once construction started in the new building, "I had my whole department, including the ladies who usually handle the bills and stuff, pulling cables and punching down — the whole nine yards," Gamel says.

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Once construction started on the news facilities in the new building, the entire department got involved in installation. "We designed it and cabled it all, with the exception of the riser and some feeders," Gamel explains. "The telecom side — and when necessary, anybody we could grab from Gina's group — pulled all the cables, punched it all down into the newsroom, everything.

"I had my whole department, including the ladies who usually handle the bills and stuff, pulling cables and punching down — the whole nine yards," he says. "The learning curve was phenomenal. Right up to the end, we were right behind the plasterers and painters, pulling cables through the walls."

"We had a short window of opportunity to get it in," Gershon adds. "We worked two months without a day off to get this place wired and ready."

CNN shut down its Atlanta operations at 5:30 p.m. on a Friday in July, sending the broadcasting duties to the New York and Washington bureaus. "The news guys started packing their boxes at 5:30 on Friday, and when they showed up down here, they had the same extensions and everything in place here," Gamel says, even though the new facilities used different private branch exchanges. "They moved from [an AT&T] Dimension to a System 85 environment pretty much transparently," he recalls.

The news operations came back on-line on Sunday morning, but not without a few last-minute concerns.

"Headline News came up early in the morning," Gamel remembers. "As I recall, CNN came on around 6:00 or so because at 5:30, one of the staff was standing on the news anchor desk with a one-inch drill bit, cutting one more hole for a phone line nobody had planned on."

Previous experiences moving and rebuilding the news bureaus aided in the move and the design of the new system. "We'd been fortunate that we'd put a newsroom on a System 85 twice in remote locations," Gamel says.

About the only thing not designed to be flexible in the new building was the computer room. Space and wiring plans were carefully laid out for all the necessary equipment.

"We designed the computer room around not moving certain boxes," Gershon states. "We use phone wires a lot. Behind the newsroom racks, there's a modular connect system for the newsroom system. We had to rely very heavily on the telecom installers, who were very busy doing a move themselves."

Architecture

The new building contains a mix of twisted-pair copper wiring and fiber optics. "We had started using twisted pair in our New York bureau," Gershon says. "Using twisted pair [in the new building] made it almost a free ride on the telecom department because all of my wiring was going in on jacks." Every telephone jack in the TBS offices also has a data jack.

Fiber was chosen for future flexibility. The department had been using AT&T's fiber-based Information Systems Network (ISN) for some communications and wanted to expand its role in the new facility.

> "The ISN architecture, when it came out, looked like an ideal application that could be developed," Gamel explains. The flexibility offered by ISN helps in such a mobile company, he adds.

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"The ISN architecture, when it came out, looked like an ideal application that could be developed," Gamel explains. "We played with it just enough to get a feel for what we could do with it. It allowed us to eliminate, to a large extent, burdening this building with coax." The flexibility offered by ISN helps in such a mobile company, he adds.

"Our cross-connect field is a

(continued on page 38)

INDUSTRY FOCUS

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Networking the networks

By KRIS HERBST

Behind the scenes, the radio and television networks are supported by a rapidly evolving labyrinth of internal communications networks. Since the early 1980s, commercial radio and TV broadcasters have incorporated satellite and fiber-optic communications, digital transmissions and advanced newsroom computer systems, triggering the most dramatic transformation of the broadcast industry's internal communications systems since radio and TV networks were first established.

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During the late 1970s, TV sta-

(continued on page 34)

Herbst is a free-lance writer based in Washington, D.C.

Beyond the electronic cottage exist the vast, complex networks of broadcasting.

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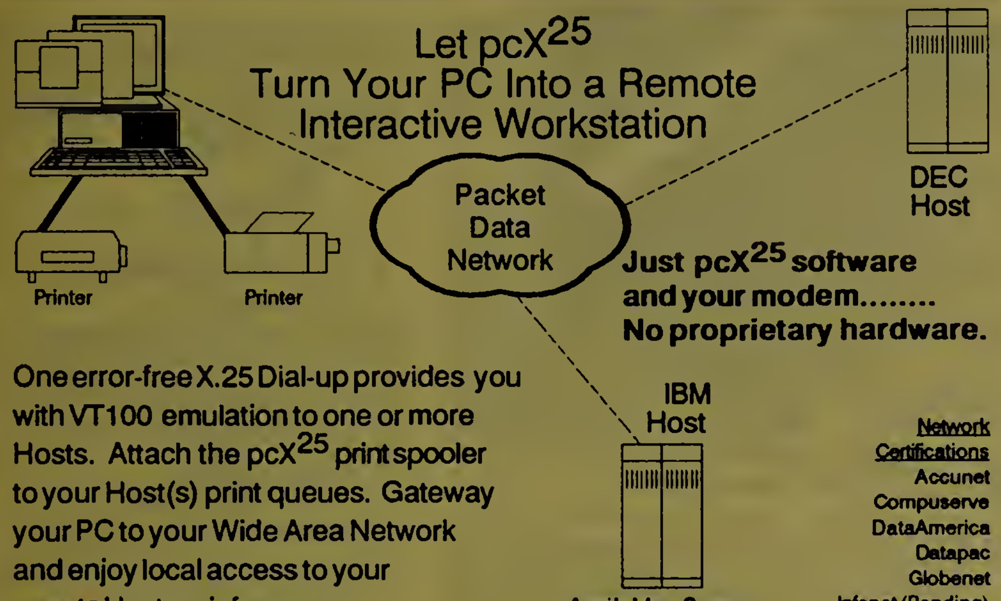

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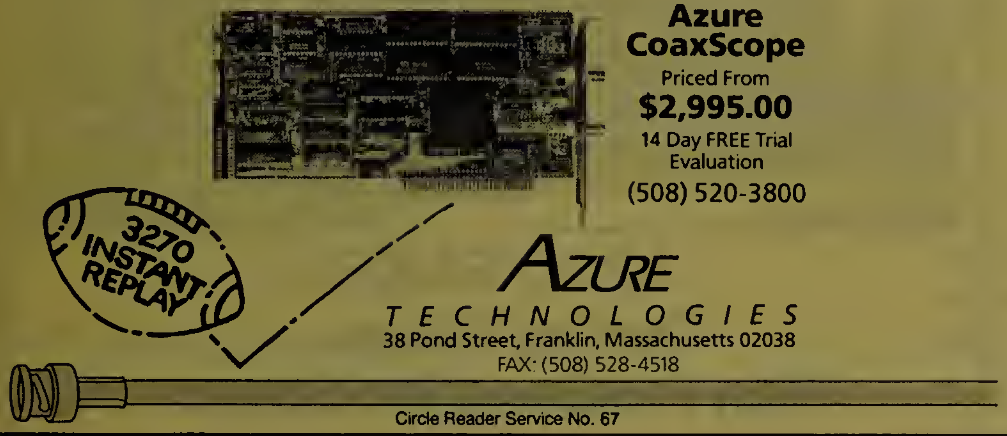

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Networking the networks

continued from page 29

tions began using trucks with extendable microwave masts to back-haul signals to microwave receivers at a studio or transmitter. These trucks could also be used to back-haul signals to microwave relays mounted anywhere within the line of sight, including on helicopters.

When satellite transmission of video signals began in the mid-1970s, cable TV systems began downlinking programming to their head-end distribution centers. Programming was distributed over cable from these distribution centers, which housed the earth stations. TV broadcasters then started placing orders for temporary installation of satellite uplinks to back-haul their coverage of sports and entertainment events, which could be planned well in advance.

Following the leader

Once TV networks began ordering satellite uplinks for back-hauling signals, the radio networks followed their lead by using subcarriers on TV satellite signals to back-haul their audio feeds. These feeds were carried on single channel per carrier (SCPC) analog signals. Radio broadcasters sometimes uplinked their own SCPC signals directly to a satellite.

This situation had its drawbacks for radio broadcasters. "They would go to one city and have an AT&T land line, they'd go to another city and ride on some video subcarrier, and they'd go to another city and use an SCPC uplink," says Peter Hartz, vice-president of Culver City, Calif.-based IDB Communications Group, Inc., a satellite transmission service company. "It was a very inconsistent service, quality was poor, and pricing ranged all over the map."

When they used subcarriers on video signals, radio broadcasters were vulnerable to the scheduling demands of TV producers. This was especially undesirable since "typically, radio tends to want to be at a story or event before TV and stay after TV leaves," Hartz says.

IDB Communications installed earth stations — usually 4.5-meter, C-band antennas designed for 7.5-kHz, SCPC audio signals — next to the studios or transmitters of radio stations that held the rights to broadcast professional sports. In turn, it would receive in exchange an uplink channel for broadcasting away games. This satellite service, which now spans 35 cities, allowed radio stations to begin feeding their away game coverage via satellite to regional stations in a traveling sports team's home region.

Today, SCPC networks such as IDB Communications' service or National Public Radio's (NPR) digital SCPC network allow individual radio stations and syndicators to uplink programs for syndication.

Since the early days of radio, radio stations have formed their own regional radio networks to augment national network programming with local and regional programming. There are now about 30 state and regional radio networks, most of which use SCPC satellite transmission to distribute their programming. Some even distribute national network programming to their members.

No more one-stop shopping

Before the 1984 divestiture of AT&T, it was easy to establish long-distance audio and video transmissions on AT&T land lines. "There was one number you called, and there was just one guy who could arrange connections between LATAs that would get you across the country," Hartz says.

After the AT&T breakup, he says, "the one-stop shopping ease of AT&T suddenly went away for broadcasters, and charges escalated dramatically once these lines were no longer subsidized by more profitable AT&T operations. Prices for land line connections went up 500% in some cases."

Around that time, the TV networks began distributing their programming by satellite. Since then, American Broadcasting Companies, Inc. (ABC) and CBS, Inc. have used C-band satellites for program distribution, and National Broadcasting Co., Inc. (NBC) has opted for the recently opened Ku band for all but its Alaskan and Hawaiian affiliates, which are outside its satellite's footprint.

> After the AT&T breakup, Hartz says, "the one-stop shopping ease of AT&T suddenly went away for broadcasters."

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The three largest TV broadcast networks uplink their programming from network hub terminals on the East Coast to affiliates in Eastern, Central and Mountain time zones, and from hub terminals on the West Coast to their Pacific time zone affiliates. Each network provides an additional, identical network feed as a backup.

This system allows the networks to vary the mix of programming and advertising for different regions by uplinking regionalized versions of programs to separate transponders.

NBC affiliates have four receivers on two Ku-band satellite dishes: One receives the network feed; the second receives the backup feed; and the third and fourth receive news, advertising and promotional feeds. When not in use by the network, the fourth receiver can also downlink programs from syndicators on other satellites or exchange back-haul feeds gathered from the field by affiliates' mobile uplinks.

> As broadcast nets' telecommunications systems have become more complex, their bandwidth appetite for back-hauls and distribution has grown rapidly.

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CBS controls its distribution system with computers that communicate over phone lines via modems. NBC's distribution system is run by a satellite news management system (SNMS). This system uses band-edge SCPC signals to control affiliates' receivers so that they are tuned to various transponders at the correct times. The affiliates send back low-power SCPC signals from their earth stations to allow polling by the network's hub terminal. NBC also sends data to its affiliates over the SNMS.

Mobile dishes

The satellite communications revolution was not complete until there was widespread deployment of mobile dishes, allowing satellite nets to be rapidly and easily extended to any location.

Because Ku-band satellites operate at higher power levels than C-band satellites and at a frequency range that is not subject to interference from other microwave sources, it became possible to mount satellite dishes on trucks, known as satellite news-gathering (SNG) vehicles. This allowed for quick establishment of uplinks from virtually anywhere in the world.

In 1986, the three largest broadcast networks created SNG networks for their affiliates by offering to reimburse the affiliates for a portion of the cost of SNG vehicles and to coordinate their satellite transmissions. As of last August, 122 commercial TV stations were using SNG vehicles, which cost an average of $422,000, according to the National Association of Broadcasters.

GTE Spacenet Corp. in McLean, Va., provides Ku-band satellite transponder space for the SNG feeds of all the major networks except NBC, which uses the same General Electric American Communications, Inc. (GE Americom) Ku-band satellites that distribute its programming. Much of the TV networks' SNG back-haul traffic passes through GTE's traffic control center in Reston, Va., which becomes a beehive of activity during the late afternoon hours preceding the evening newscasts.

GTE also maintains a separate full-time transponder for voice and 1,200 bit/sec data communications for as many as four phone lines in each SNG vehicle. It uses SkySwitch technology provided by SkyCom Group Limited Partnership, SCPC and demand-assigned multiple access satellite technology for this purpose.

The system operates like a cellular phone, allowing users to make telephone calls from SNG trucks directly to any other satellite receiver that is pointed at the same GTE satellite. It also lets calls be connected to the public switched phone system through a private branch exchange at the hub.

Producers can use the system to supervise news crews, coordinate transmission times and transponder assignments, and provide the audio channel that allows a reporter to hear the comments of a news anchor during live feeds.

NBC uses a Harris Corp. band-edge, SCPC voice communications package for its SNG vehicles. This means that voice communications is not independent of video feeds, as it is on GTE's SkySwitch system. However, the Harris system has the advantage of being able to access any satellite for transmissions and can be used by the network for remote control of SNG uplinks.

Recently, flyaway Ku-band earth stations, small enough to be carried onto an airplane in packing cases, have become available. IDB Communications has provided promotional broadcasts for radio stations from portable earth stations on cruise ships, using special equipment to track a satellite as the ship moves.

As satellite transmissions replaced AT&T's long-distance services for broadcasters, the carrier applied for and has recently received permission from the Federal Communications Commission to discontinue its domestic inter-local access and transport area services.

Radio networks continue to use telephone company lines when an uplink isn't available or when frequencies at special events become crowded. Although the 3.5-kHz bandwidth of a single phone line cannot match the quality or reliability of 7-kHz satellite audio transmissions, it is still possible to order a higher bandwidth, equalized circuit for local transmissions.

As broadcast networks' telecommunications systems have become more complex and sophisticated, their bandwidth appetite for back-hauls and distribution has been growing rapidly. "We find ourselves needing T-1 more and more," says Robert Donnelly, satellite systems director for Capital Cities/ABC Radio Network, Inc. in New York.

"In addition to audio," he says, "we need data lines from the field so we can tie into our computer system, and we need telephone tie line service so we can connect from a remote site into the telephone network in our New York plant. Add it all up, and it becomes a T-1. So we started using T-1 technology with the satellite distribution system."

For major news events at remote sites, such as the Olympics or a political summit meeting, radio networks may order 15-kHz audio channels. These require a 384K bit/sec simplex channel for high-fidelity sound; 7.5-kHz voice-quality lines, which are adequate for about 80% to 90% of the field work; a low-quality audio channel for voice cuing; 9.6K bit/sec synchronous channels for data; and voice-grade duplex channels for switched telephone service or private lines.

Computerized news

Broadcast networks operate a variety of computer networks. In the past, they have tended to use MIS department mainframe- or minicomputer-based systems, with remote connection by dial-up modems. They are now beginning to deploy automated newsroom systems and personal computer- and workstation-based local nets as well.

The most common automated newsroom system is a Digital Equipment Corp. MicroVAX II-based system made by Basys, Inc. of Mountain View, Calif., which runs on an Ethernet. Basys systems are used to integrate news wire services, teleprompters, printers, programming distribution control systems and automated tape-loading devices and cameras.

Broadcast networks typically connect their Basys systems at headquarters in New York to several major bureaus (for example, London, Los Angeles and Washington, D.C.) via a 9.6K bit/sec baud channel on a T-1 line.

In the high-volume corridors that run between major cities — where audio, video, voice and data traffic is concentrated — radio and TV networks and other communications providers such

(continued on page 36)

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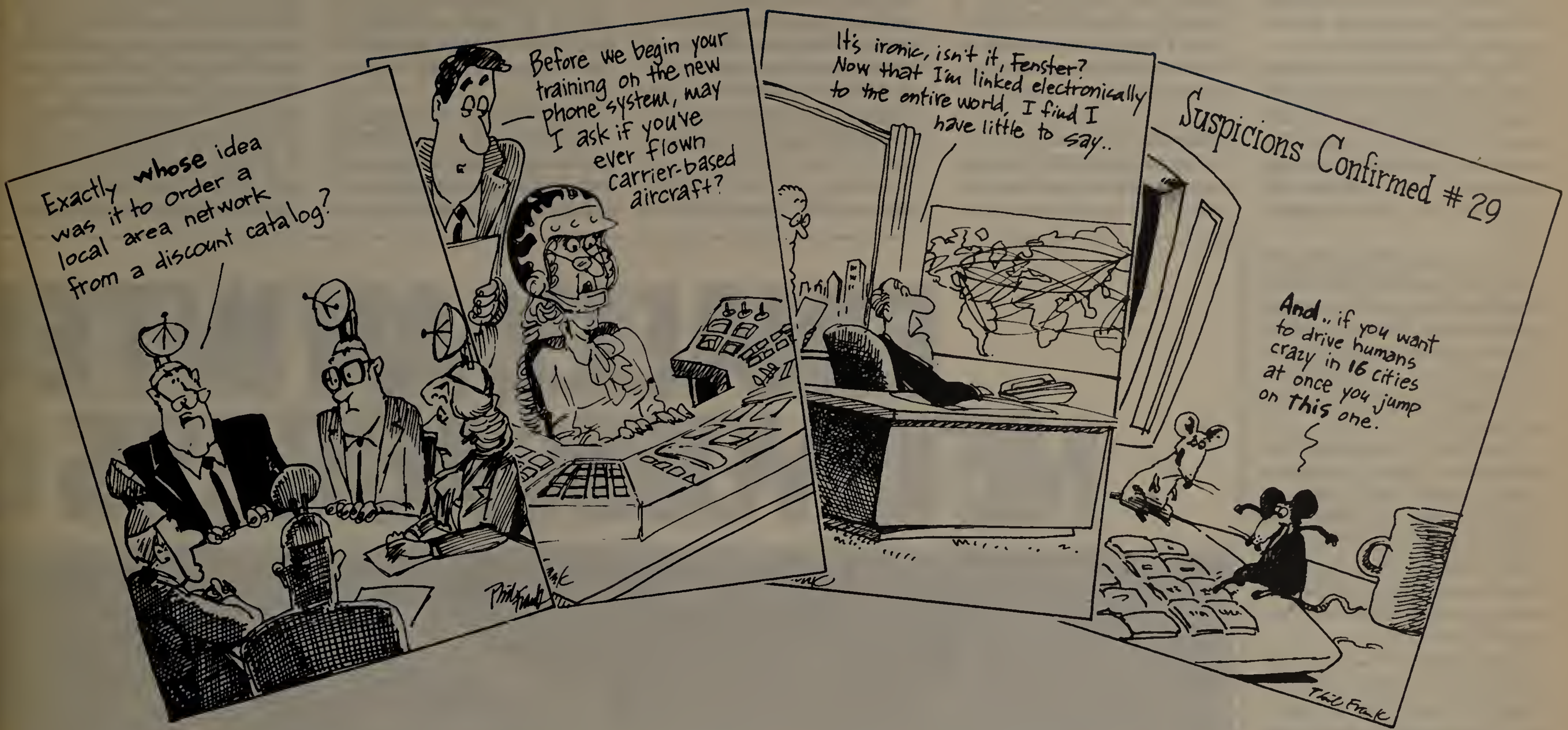
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(continued from page 34)

as AT&T and IDB Communications have installed a network of T-1 fiber cables to interconnect broadcast studios, earth stations and other businesses.

In many cities, Bell operating companies and other communications providers maintain networks of local fiber loops interconnecting switching centers, teleports, studios and sites that frequently host remote broadcasts.

High-capacity fiber-optic lines offer the advantage of carrying higher quality signals than analog circuits and are not as vulnerable to terrestrial and atmospheric interference. T-1 lines are often backed up by SCPC satellite paths.

The bulk of the radio networks' fiber capacity is used for program back-hauls and some distribution. The TV networks use 45M bit/sec fiber for video back-hauls between New York and Washington. (*ABC Nightline* is sent from Washington to New York this way.)

IDB Communications recently established the first full-time, digital T-1 audio links to London and Moscow, the first use of International Telecommunications Satellite Organization Business Service for digital audio channels. The company plans additional links to Western Europe, Japan and Australia.

DATS right

National radio networks' T-1 lines are also connected to the digital audio transmission system (DATS). DATS technology was developed by Atlanta-based Scientific-Atlanta, Inc. in 1982. As the national radio networks converted from terrestrial to satellite transmissions, all but NPR switched from SCPC transmission to DATS for distributing programming to affiliated stations. DATS' 15-kHz stereo audio remains the state of the art in audio transmission and is not likely to be replaced in the near future.

"DATS is unquestionably the most reliable 15-kHz audio delivery available," says Brian Heimerl, vice-president of production for Westwood One Radio Networks, Inc. in Culver City, Calif.

ABC Radio Network operates a data network on DATS using a 32M bit/sec data channel. It can poll and address individual affiliates, and it is used to send information that can be entered from the network's Basys newsroom computer system. NBC is preparing to install a less sophisticated version of this system on DATS.

Generation of DATS transmissions is expensive and, in order to be economical, requires filling a transponder with an 8.77M bit/sec data stream, equivalent to 20 15-kHz channels.

For this reason, the major radio networks consolidated all of their traffic so that GE Americom could uplink it to two transponders on its Satcom F1R satellite from a single DATS hub in Vernon Valley, N.J.

There was no other DATS uplink until Westwood One financed a second DATS hub in 1984. This hub was built and operated by IDB Communications in Los Angeles.

Under the influence

The growth of IDB Communications and Westwood One demonstrates the influence of satellite technology on the broadcasting industry. Before satellites were available, "setting up a wired network made the cost of [market] entry too high," says Warren Vandeveer, director of operations and engineering for the NBC radio networks. "Now satellites have really made it so that anyone can be a radio network."

However, even with the availability of a West Coast DATS earth station, "it's a little inflexible in that you've only got two DATS uplink points: in L.A. and New York," Heimerl says. "When we have to do major remotes, we have to hire the services of another company to provide the transmission."

But there are advantages to centralization. By consolidating their programming on one satellite, the radio networks have encouraged radio stations to invest in DATS-compatible receivers because they can downlink feeds from the major radio networks without re-aiming their dish. This, in turn, encourages syndicators that want to reach these stations to put their programming on the DATS system.

This flexibility is important to radio stations because, at a cost of $9,000 to $15,000, a DATS earth station is a significant investment, and most cannot afford

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to purchase more than one dish to receive programming from multiple sources on different satellites. "It has given local radio stations a lot more flexibility in choosing their technology because it's all on one source," Heimerl says.

DATS also allows for effective distribution, Hartz says. "For $435, you can transmit one hour of stereo programming — uplinking through Satcom F1R to a potential universe of more than 5,000 radio stations. So it's like saying it costs less than $10 per station to get a stereo program to their doorstep."

Although 5,000 to 6,000 of the nearly 10,000 U.S. radio stations have DATS receivers, according to Scientific-Atlanta, NPR and many nonnetwork stations and radio program syndicators continue to use SCPC transmission or to distribute tapes and compact disks. Noting that Westwood One owns a compact disk pressing facility, which produces disks for distribution, Heimerl says that one of his biggest disappointments in this business is the fact that many station owners prefer to receive a disk or tape, rather than to instruct an engineer to stand by and record programs off of a satellite transponder.

"We have not been able to wean the radio community away from the old system of delivery, which was disk or tape, and onto a clearly better audio delivery system that doesn't [have to] meet their work schedule," he says.

Heimerl predicts this problem will eventually be solved by radio station satellite retrieval systems with individually addressable data channels that allow the network feed to operate station tape recorders remotely.

In recent years, the radio networks have been joined by Satellite Music Network, Inc. (SMN) in Dallas and Transtar Radio Network in Hollywood, Calif., which use satellite SCPC transmission to deliver a variety of 24-hour music formats, complete with announcers and advertising. Radio stations can reduce their programming costs by simply rebroadcasting the downlinked programming.

Video fiber nets

Although radio networks have leapfrogged ahead of TV by going to digital satellite transmission, researchers at Bell Communications Research, Inc. in Morristown, N.J., are planning a terrestrial, digital, video, fiber net.

A full-mesh video fiber network that matches the flexibility of satellite star networks would be prohibitively expensive, but a fiber network based on a much less expensive tree configuration could carry much of the routine network traffic between broadcasters and affiliates. One or more central trunks could be connected to branches going to the networks' eight or 10 regional markets since the networks rarely regionalize programming below this level.

A fiber network would offer the advantages of digital communications, including protection from terrestrial and atmospheric interference, and would be easy to expand at a time when the parking orbit for geosynchronous communications satellites is becoming crowded. However, BELLCORE must first overcome some daunting obstacles to the implementation of a video fiber network.

Numerous players must cooperate, including broadcasters, the seven regional telephone companies, about a dozen interexchange carriers and numerous equipment manufacturers. Standards are needed so that the system will be compatible throughout the U.S.

Rather than return to the era of telephone company-controlled networks for distributing programming, which makes distribution of programs to a specific region rather complicated, broadcasters want a network that their engineers can control without intervention by the BOCs or interexchange carriers.

The BOCs, major TV networks and several of the interexchange carriers and equipment suppliers are planning a nationwide eight-city trial of such a fiber network. In the meantime, there is growing competition between telephone and cable TV companies to see who will succeed in extending a fiber distribution network from broadcasters and other information service providers directly into homes.

Networking the networks is becoming an increasingly demanding task, and it will continue to grow in scope and complexity as technology evolves.

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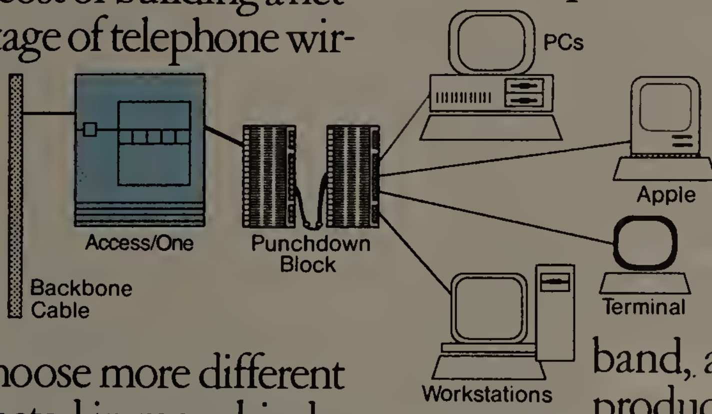

The big bang theory

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pretty good-sized nightmare, with inventory that changes once a week back there," Gamel says. "This is such a mobile company that even the sales groups have an awful lot of transition. So it's not only the newsroom that's always on the move. There's constant move and shuffle in the building.

"And we just added a whole new network last year [Turner Network Television] that's taking off pretty good and our support for them is jumping up," he continues. "So it's an architecture that we bought into and are now utilizing to the fullest."

While every possible aspect of the new architecture was planned before the move, events dictated that some had to change. "A lot of what had been planned initially was changed in the transition and developed internally," Gamel explains. "Gina's folks had installed ISN [in the old building for mainframe and non-news system support], but once they started surveying the site here, they decided pretty much to build their own architecture to distribute the newsroom computer system."

According to Gershon, a lack of redundancy in the ISN dictated the in-house network development. "So, late in the game, we had to do something else," she says. "We already had the fiber around." The department developed a distributed, redundant in-house network using fiber-optic multiplexers. The fiber runs are complemented by twisted-pair wiring on each floor.

> "We know now what growth goes on in this company," Gershon says. "There's expansion room for quite some time built in."
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"In the old building, we only had a total of three floors to worry about," Gershon explains. "In this building, HNN is on the third floor, the master control areas are on the fourth floor, CNN is on the fifth floor, and feature units are on the seventh floor. We'd never had to deal with floor technology before.

"We put a fiber-optic run to each floor, and a fiber multiplexer [on each floor]," she says. "From there, it's twisted pair from the phone closet to whatever terminals are on that floor."

"The fiber carries the ISN," Gamel says. "We've got fiber in the floor everywhere, waiting for applications. It was cheaper to put it all in at once."

When a new user moves into the building or an existing user moves, Gershon locates the ISN concentrator or newsroom system multiplexer nearest to the person and connects them into the system that way. The concentrators allow connect distances of up to two floors apart, she says. It's all part of planning to control the explosions.

"We know now what growth goes on in this company," Gershon says. "There's expansion room for quite some time built in. This building was wired for growth."

The mainframe cometh

It didn't take long for the growth plan to be tested. TBS had purchased the assets of the Metro-Goldwyn-Mayer (MGM) film studios in 1986, including an IBM 3081 mainframe used for administrative functions and tracking the extensive MGM film library. As Gamel recalls, news that the department would be supporting mainframe operations came suddenly.

"At the time of the MGM acquisition, no one bothered to mention that there was a mainframe out there," Gamel remembers. "In fact, when I went out to look at their phone system, it was kind of an afterthought for me to go meet with the mainframe people. They said, 'They've got a data shop over there — you ought to see what they're doing.' We walked in and said, 'Jesus, look at these big boxes.' "

Initially, the mainframe stayed in Los Angeles, but in 1987, management decided to move it to Atlanta.

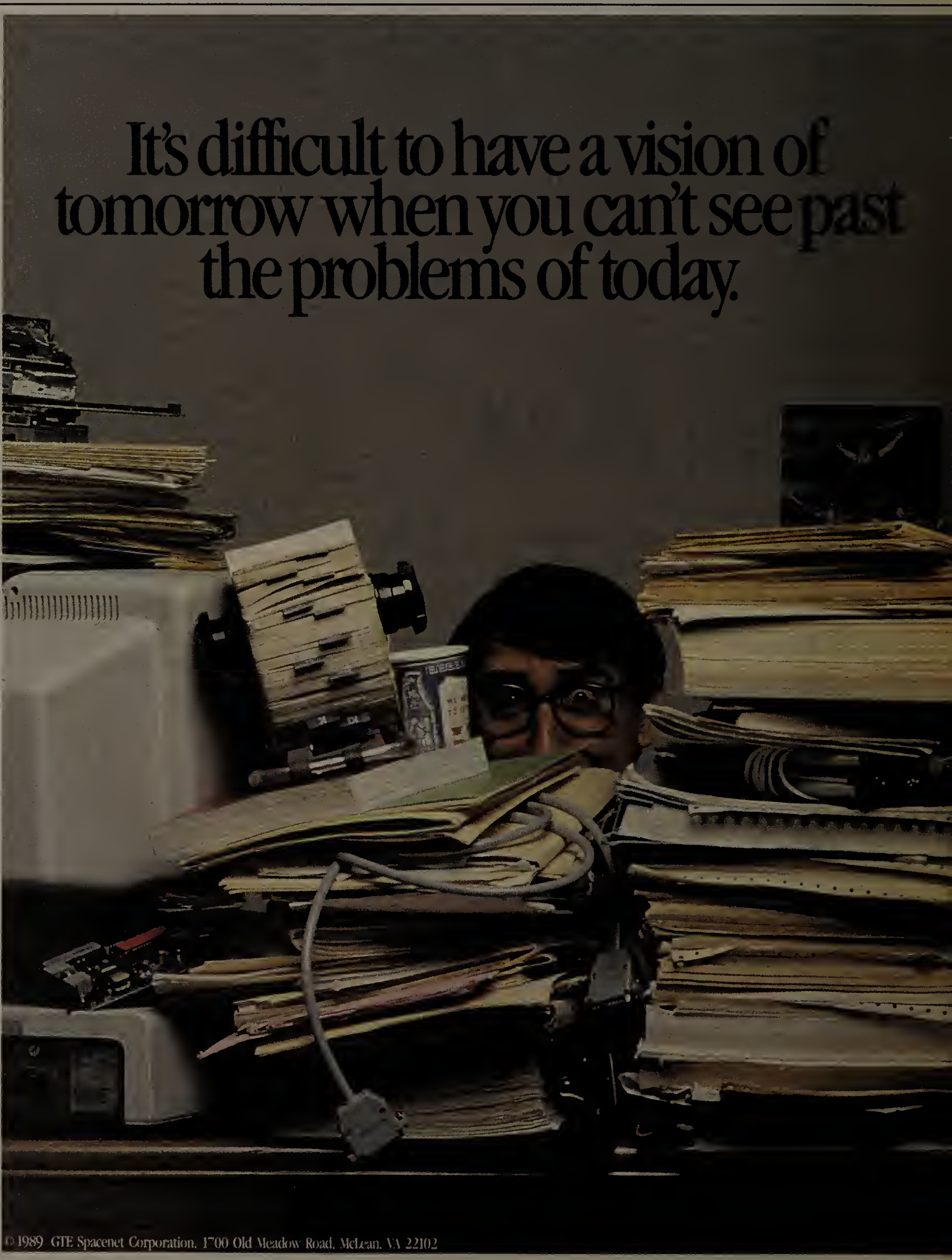
"It took us about six months to recover from the move [into CNN Center], then we had to deal with how we were going to get the mainframe environment moved in," Gershon says. "We had to completely renovate the computer room that we had just moved into. That room was not specced for a mainframe."

Once moved in, it became necessary to fit the mainframe transparently into the overall connectivity plan as well as to keep the mainframe linked with its former base on the West Coast. That task fell to Jody Johnson, the data networking coordinator.

"We're on a backbone network of two 56K [bit/sec] lines from L.A. to [Atlanta]," Johnson explains. "We're running through two major nodes of the AT&T ISN — one here and one in L.A. — and that gives us a lot of flexibility and capability in areas we wouldn't otherwise have." The in-house mainframe network uses AT&T network architecture with 6,500 controllers, coaxially attached to the computer.

"We have all kinds of terminals, Irmas, everything," he says. "We use DCA, Attachmate [Corp.] and Quadram [Corp.] boards in the PCs and terminals; we're moving toward standardizing on the Attachmate.

"We have such a hybrid environment; it's one of the most exciting networks you could ever imagine," Johnson continues. "We have about 700 PCs, a good 50% of


It's difficult to have a vision of tomorrow when you can't see past the problems of today.

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which are Apple. We're running them all across the ISN.

"The Apples are being tied together with Solana [Electronics] and Farallon [Computing] products, as is typical with the LocalTalk environment," he says. "We are connecting those through the ISN and are going to look at Ethernet soon for the Apples. The PCs are not on the ISN yet. We also have several Novell and Starlan networks in the building."

With such a mix of computers, terminals and architectures, how is everything made transparent to the users?

"Smoke and mirrors," jokes Gamel.

"Scotch tape and bubble gum," Johnson echoes. Actually, he credits extensive in-house testing with making things work. "We try to test something in [the MIS/telecommunications area] before we bring it out [to the newsroom or other operations]," he says.

While admitting that the network is getting complex, Johnson says the company doesn't need a full-blown network management system yet. "From a network management standpoint, when we feel we need the sort of capability of [IBM's] NetView, we'll put it in," he states.

> "Our biggest job is translating the technologies out there back to the business part of the company."
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Plans for the future

Corporate expansion is once again forcing the department to reevaluate its plans, including proposals for disaster recovery.

"We're in the throes of a network study," Gamel says. Among the issues under advisement are migrating the field network to T-1 and the burgeoning traffic on their Eastern Corridor network between Atlanta, Washington and New York. Gamel adds that the West Coast operations are starting to reach critical mass as well.

"The [expanding] sales operation out there, along with Turner Entertainment, are starting to make us look at options," he says. "We're getting near to making some new and, I hope, wonderful decisions on economies of service and dollars regarding the two big [56K bit/sec] pipes we have running out there. It ain't cheap.

"Because of the newsroom operation, any bundling of services has to have some demonstrable redundancy," he adds. "We live and die by that newsroom computer system."

For this reason, the department is closely examining disaster recovery plans. Among the unique concerns to deal with is a train that runs under the CNN Center.

"We have to guess what might happen to the building and the system if something happens to the train down there," Gershon says.

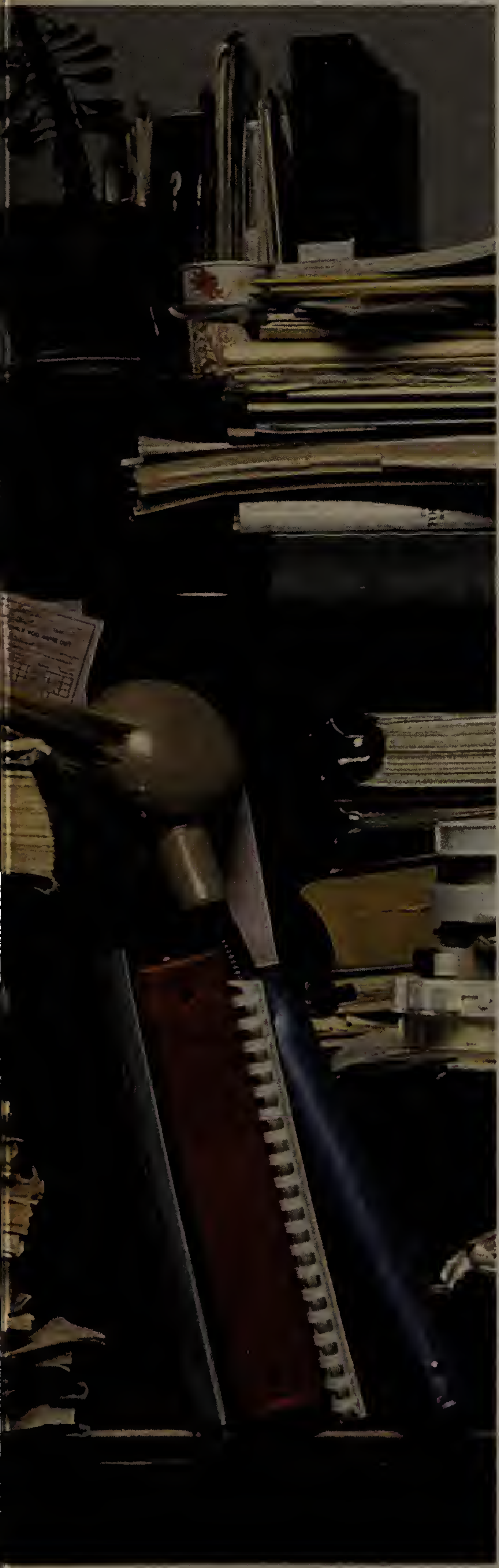
Gamel and the others are working to compare their current needs and capabilities with what will be necessary to keep everything running with the least amount of fuss and money.

"We say, 'What can we do with what we have now? How can we bring up the critical areas?' That was flagged early in the game: a kind of primitive use-what-we-got plan," Gamel says.

"We investigate it, tell the company what it costs, and they decide the kind of insurance they want to buy," he adds.

Gamel and Gershon agree that the greatest challenge facing the company is planning for future technologies.

"Our biggest job is translating the technologies out there back to the business part of the company," Gamel explains. "We've got to keep everything rolling on the telecom side, and at the same time, look down the road and see what's coming. And it's coming like lightning." ▣



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Letters

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agement, marketing and political failure, not an engineering shortcoming.

For example: Remember, Ampex Corp. engineers developed great audio and video recording equipment, only to have Ampex marketers fail to exploit them and Ampex management license these "patented" products for a fraction of their true value.

Remember, GE and RCA Corp. had the world portable radio market 70% locked up, and in trying to protect their vacuum tube business let the Japanese transistorize portable radios and then stood by while the Japanese captured this vast worldwide market. GE and RCA lost their portable radio and tube business in the process.

There are hundreds more examples. U.S. managers, marketers and politicians have pushed the U.S. economy into its current morass with plenty of help from all of us stupid consumers who don't know which side our economic bread is buttered on.

We will only regain our former preeminence by realizing our true self-interests, formulating a strategy and working hard together as a team. Calling names or placing blame won't get the job done.

Daniel McDevitt
President
Progress Engineering
Tulsa, Okla.

Token-Ring Net not just for PCs

continued from page 1

Computers and other workstations. The local nets will each be linked to two larger campus token rings via separate gateways, thus providing redundant data paths. Each pair of campus token rings will connect the nets in about four buildings. Finally, two backbone token rings tie all the campus token rings together.

Hanging off each pair of campus token rings is another net dedicated to IBM 3174 cluster controllers, to which various 3270-type devices are hardwired.

Some campus token rings are also linked to separate nets dedicated to front-end processors, which are, in turn, channel-attached to mainframes.

IBM's Token-Ring Interface Couplers (TIC) are used to link the front-end processors to the networks. Thus, devices such as cluster controllers or local Token-Ring Networks are linked to the front-end processors at 4M bit/sec, rather than typical line speeds of 19.2K or 56K bit/sec.

"It's improved the performance tremendously in terms of providing local-like response time to any host in the complex," Campbell said.

Besides saving money by eliminating the need for leased lines on the campus, the Token-Ring Networks decrease user dependence on a single mainframe.

With the Token-Ring configuration, IBM's Network Control Program (NCP) running on each front-end processor handles network routing, as opposed to VTAM on the mainframe, Campbell said.

Response time is improved since data does not have to be routed through the mainframe, and NCP routing eliminates the possibility that every user attached to a mainframe will be idled if that mainframe should go down, Campbell said.

"It's also helped in terms of moves and change management," Campbell said of the Token-Ring topology. "The [users] can move their terminals, plug them in and start working without having to get [system administrators] involved to make a lot of changes."

Another advocate

Conoco, Inc. has realized some of the same benefits at sites in Houston and Ponca City, Okla.

Conoco installed a fiber-based 4M bit/sec IBM Token-Ring Network to link 19 other departmental personal computer token rings at its 16-building campus in Houston, said Don Keller, data network coordinator with Conoco's telecommunications division.

The backbone also supports 34 IBM 3174 cluster controllers, which are linked at 4M bit/sec via a TIC to an IBM 3725 front-end processor. The front end, in turn, is channel-attached to a 4381 mainframe, Keller said.

The configuration supports mainframe links for about 800 3270-type terminals and 1,200 personal computers, he said. A similar configuration with 57 3174s exists in Ponca City.

The Token-Ring Networks decrease user dependence on a single mainframe.

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Benchmark tests

To see just what difference the 4M bit/sec backbone made, Conoco conducted benchmark tests of different configurations by transferring a file back and forth between a Personal System/2 Model 60 and a mainframe, said Brent Link, a network systems programmer for the company.

With the workstation linked to a 3174, which was connected via a 19.2K bit/sec line to the front-end processor, the average throughput was 900 byte/sec, Link said.

With the cluster controller on the fiber backbone, throughput jumped to 3,100 byte/sec, he said.

The Token-Ring backbone also makes for a more homogeneous network by providing a single transport mechanism for the personal computer local networks and 3270-type data traffic, Keller said.

According to Jeff Masters, data network coordinator of telecommunications in Ponca City, the single network topology also simplified support.

"It simplifies support from a standpoint of not having to support every type of topology that an operating department or a service department might choose on its own," Masters said.

Token-Ring also simplifies wiring schemes when personal computer-based local networks have to be outfitted for mainframe access.

Cheryl Currid, manager of applied information technology at Coca-Cola Foods in Houston, once used coaxial cable adapter boards to give personal computers mainframe access. Those boards have been replaced by TIC connections from Token-Ring Nets to a front-end processor.

She said the TICs provide the same response time for the company's personal computer users while eliminating all the cables associated with coaxial adapter boards.

Currid said Coca-Cola supports hundreds of personal computers on four primary networks — each of which have 4M bit/sec access to the company's 3725 front-end processor — plus 11 secondary networks with bridges to the four primaries.

The personal computers that need mainframe access most often are on Token-Rings attached to the front end via a TIC, Currid said. Users requiring less mainframe access get their data routed through a gateway Personal System/2, which is attached to the front end via a TIC.

The difference in response time between the two methods is almost imperceptible, except when conducting file transfers or when the gateway is overloaded, she said. However, devices on the gateway-attached net do not have to be configured as PU Type 2 devices, unlike those that are on the Token-Ring that is directly attached to the front end. The gateway method thus puts less burden on the front-end processor. ◪

Users see loopholes for AT&T in Tariff 12 ruling

Hundreds of Tariff 12 plans may be possible.

By Anita Taff
Washington Bureau Chief

WASHINGTON, D.C. — The Federal Communications Commission last week released the full text of its AT&T Tariff 12 order, prompting harsh criticism from opponents who say the ruling doesn't go far enough in protecting users from discrimination.

One opponent said the FCC ruling paves the way for AT&T to file hundreds of new Tariff 12 plans.

In a ruling issued earlier this month, the FCC endorsed the concept of customized network packages but rejected AT&T's current Tariff 12 arrangements as unlawful because they contain provisions that make it difficult for other users to enter into similar network deals ("FCC ruling paves way for broader use of Tariff 12," *NW*, April 17).

AT&T will be allowed to continue providing service to its five commercial Tariff 12 customers — American Airlines, Inc., American Express Co., E.I. du Pont de Nemours & Co., Ford Motor Co. and General Electric Co. — while it revises the tariff according to FCC guidelines.

The Independent Data Communications Manufacturers Association (IDCMA) last week called the FCC's ruling a dangerous precedent. In the past, IDCMA has expressed concern about whether systems integrators would be permitted to purchase Tariff 12 arrangements for use in designing corporate networks.

Herb Marks, legal counsel for IDCMA, said the FCC ruling does not ensure that customers of systems integrators will get the same prices as large firms buying service directly from AT&T. "This decision does nothing to remove the discrimination that is already in place and encourages AT&T to file dozens, perhaps hundreds, of new Tariff 12 options," he said.

A top MCI Communications Corp. official also expressed concern that the FCC order fails to resolve the question of discriminatory pricing but said he doubts it will lead to an avalanche of new Tariff 12 filings.

MCI has indicated in filings with the FCC that the main reason users make Tariff 12 deals is to take advantage of deep discounts, prices that may not cover AT&T's costs of providing service.

Dan Kelley, director of regulatory policy for MCI, said AT&T will now have less opportunity to price below cost because the FCC mandated that similar deals be made available to others. "They are going to have to be more careful with their pricing," he said.

In its ruling, the FCC countered criticism that key issues surrounding Tariff 12 were left unresolved. The agency said that because the tariff was found unlawful due to its restrictive geographic provisions, it is not necessary to address other concerns.

But critics said the ruling's guidelines on Tariff 12 revisions are so vague, they fail to ensure that all customers will be treated equally.

The FCC said it will reject any tariff package that includes restrictions limiting service to a single customer. The commission gave guidelines on criteria it will use to decide whether provisions are too restrictive, including such factors as traffic volume, length of service arrangement, package prices and mix of services.

However, the FCC did not indicate exactly how the criteria would be applied. It also said that some types of restrictions, such as the number of switch ports or variations in mileage bands, would not necessarily make a tariff unlawful.

Several Tariff 12 opponents, including MCI, said they will seek further clarification of how the FCC will handle the refiled Tariff 12. However, attorneys here said it may be difficult to appeal the FCC's decision since the agency technically rejected the tariff. ◪

ICA to host ISDN application showcase

continued from page 2

Exhibit Liaison Committee, the group that worked with Southwestern Bell to set up the demonstration.

The two existing Southwestern Bell Telephone central office switches that will be used in the demonstration are an AT&T 5ESS and a Siemens Public Switching Systems, Inc. EWSD. AT&T will run fibers from its switch to a remote module on the show floor. Siemens will do the same with twisted-pair wire. The third switch, a Northern Telecom, Inc. DMS-100, will be located in a truck outside the Dallas Convention Center. The fourth switch, an NEC Corp. NEAX 61E adjunct, will be installed on the show floor.

The four switches are linked to a Tellabs, Inc. 532 T-Carrier Cross-connect System (TCS) that enables calls to be delivered to stations hooked to any of the central office switches using a minimum of intermachine trunks. "If we didn't use the Tellabs system, each switch would have needed at least one trunk to every other switch in the demonstration," King said.

Terminals are linked over a Basic Rate Interface line to the four central office switches. Terminal users can access host computers over Southwestern Bell Telephone's MicroNet II packet network service via a packet engine installed on the show floor, King said.

The Basic Rate Interface lines will support two 64K bit/sec B channels, which carry digitized voice and data traffic, and a 16K bit/sec D channel for signaling. The Primary Rate Interface lines will support 23 64K bit/sec D channels and a 64K bit/sec D signaling channel.

> The two Southwestern Bell Telephone switches that will be used in the demo are an AT&T 5ESS and a Siemens EWSD.

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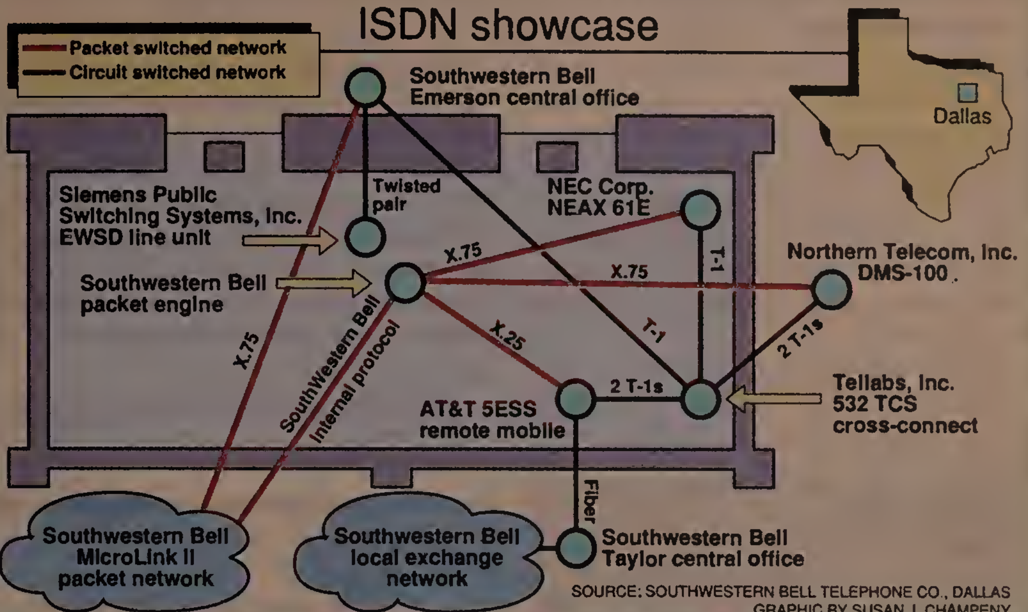
The majority of the ISDN applications will use Basic Rate Interface lines. Among the applications to be exhibited are:

- AT&T — Computer-Integrated Manufacturing, showing how a user in a corporate office and a plant floor manager at a remote factory can use an ISDN Basic Rate Interface line to simultaneously discuss and view part product designs.
- Codex Corp. — Network Backup and Peakload Support Via ISDN, demonstrating how a B channel on a Basic Rate Interface line can be used to back up a private line that is knocked out of service or to carry overflow traffic during peak periods.
- IBM — ISDN Data Applications and Network Management, showing how an IBM NetView/PC with an IBM 7820 Terminal Adapter can manage multiple synchronous devices (with 7820 Terminal Adapters) such as computers, workstations and controllers over a Basic Rate Interface line. Network management capabilities provided will include remote configuration of all 7820s in a network, remote diagnostics and software maintenance.
- Microcom, Inc. — ISDN LAN Bridging, demonstrating how two remote local nets equipped with a bridge can be linked over a Basic Rate Interface line.
- Northern Telecom, Inc. — Incoming Call Management. In this application, automatic number identification will be used with a data base lookup capability to speed call processing by retrieving caller data files for agents.

Other ISDN customer premises equipment suppliers include: Fujitsu America, Inc., Hayes Microcomputer Products, Inc., Newbridge Networks, Inc., PicturTel Corp., Teleos Communications, Inc. and Wang Laboratories, Inc.

Ten ISDN equipment vendors, including Tekelec, Inc., Idacom Electronics Ltd., Digilog, Inc., Atlantic Research Corp.'s Teleproducts Division, and Harris Corp.'s Dracon Division will peddle their wares from booths near the demonstration. ◘

International Communications Association
ISDN showcase


Packet switched network
Circuit switched network
Southwestern Bell Emerson central office
Dallas
Siemens Public Switching Systems, Inc. EWSD line unit
Twisted pair
NEC Corp. NEAX 61E
Southwestern Bell packet engine
X.75
X.75
T-1
Northern Telecom, Inc. DMS-100
X.75
SouthWestern Bell Internal protocol
X.25
T-1
2 T-1s
2 T-1s
AT&T 5ESS remote mobile
Tellabs, Inc. 532 TCS cross-connect
Fiber
Southwestern Bell MicroLink II packet network
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Westinghouse offers net consulting

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ity transport," he said.

According to Rosenzweig and David Edison, executive vice-president of communications systems at Westinghouse Communications, Westinghouse Electric has been a pioneer in the use of new communications services and now wants to parlay that expertise into a growth business for the company.

Edison said Westinghouse Electric built one of the first tandem voice networks in the U.S., created the first computer-controlled worldwide message-switching system and was the first to employ T-1 technology on a large scale. "We've listened to the users," Rosenzweig said. Users are looking for someone that can offer an integrated solution for communications services across the board, he said.

Westinghouse's Harlan Rosenzweig

Westinghouse Communications' services will be targeted primarily at Fortune 1000 and other midsize and large companies that have intensive communications needs but lack the resources to develop a large internal telecommunications staff.

Westinghouse Communications' services will be divided primarily into two areas: consulting and sales of services provided over its internal network. Employees will help users assess their networks, discuss ways to expand or add new capabilities, and either help customers create proposals to be sent to carriers or directly procure services and equipment for those customers, Rosenzweig said.

The division will propose its own network services as an option to fulfill customer needs, but it will also help users purchase services from other carriers, he said.

> "We've listened to the users," Rosenzweig said.

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The main benefit to customers is the opportunity to obtain sophisticated services on a flexible basis without any investment in facilities, said James Sobczak, vice-president of sales and marketing at Westinghouse Communications. "We're offering users the same kind of capabilities, the same sophistication that's available to every one of the Westinghouse divisions," he said.

Westinghouse Electric's backbone network currently consists of 120 T-1 lines, 10 nodes with Northern Telecom, Inc.'s DMS-250 tandem voice switches and virtual net services from MCI Communications Corp. and US Sprint Communications Co.

In order to update the network and add capacity for new customers, Westinghouse asked carriers to submit bids for 45M bit/sec T-3 facilities to link six DMS-250 nodes. Westinghouse Electric is considering bids from several vendors, Edison said, one of which is a Tariff 12 package from AT&T ("Westinghouse mulls AT&T Tariff 12 bid," *NW*, Feb. 27).

Earlier this year, Westinghouse Communications acquired Atlanta-based Harbinger Computer Services, Inc., whose electronic data interchange software will be offered over the company's transmission facilities to tie together trading partners. The division also acquired Stamford, Conn.-based Communications Design Corp. (CDC) so it can provide net management based on CDC's software.

Rosenzweig said he projects the new division will have sales of $100 million for 1989 if no further acquisitions are made. About 44% of that amount will be generated by internal customers on Westinghouse's network, with the rest coming from external users of Westinghouse's network services or sales of products from the acquired companies.

Howard Anderson, president of The Yankee Group, a research firm based in Boston, said he believes Westinghouse Communications will reach $500 million in sales by 1994. He said he also expects the division to make two to three acquisitions per year over the next few years.

Westinghouse's David Edison

Edison said the new communications division has been offering service to customers on a limited basis and already has between 15 and 20 external customers, but he was willing to name only one — McNeilabs, Inc., based in Spring House, Pa.

UK bank in two-pronged net effort

continued from page 1

1,500-node X.25 network to carry data between branch offices and the new regional computing centers. According to a company spokesman, the regional centers should be up and running on a trial basis by the end of this year.

The goal of the project is to cut data processing costs and improve customer service, the spokesman said. Concentrating DP operations in regional centers will let the company cultivate economies of scale and free up space, he said.

About 80% of Midland's branch office space is currently taken up by DP equipment and office accessories such as filing cabinets. After moving the bulk of DP chores to the regional centers, Midland plans to remodel its branches, devoting 80% of bank space to tasks involving customer interaction.

More branch employees will work in areas where they deal with customers, and fewer will work isolated in back-office operations. This should improve customer service, the spokesman said.

Selling services

Midland's new subsidiary, Midland Network Services, will have a staff of 60 workers and will be in charge of expanding the bank's sales of communications services.

Midland currently sells a variety of data communications services. One, called Fasttrack, has been on the market since 1984, according to Ian Ogilvie, director of operations for Midland Network Services. Fasttrack enables travel agents to dial into Midland reservation centers and make flight, hotel and car rental reservations. The reservations are made via videotex, and much of the communications traffic is carried over Midland's X.25 net, he said.

Ogilvie said the bank also supplies communications services to Fiat S.p.A. and Volvo AB SWE, linking UK data centers run by the automakers to their dealerships. Several financial services and retail firms also use Midland's X.25 network to link branch offices to data centers, he said.

John Tyce, a bank analyst at Nomura International Group, the London subsidiary of the Tokyo-based brokerage, estimated that Midland pulls in about $4 million to $5 million dollars annually from the sale of communications services.

Ogilvie said Midland Network Services will focus on expanding sales of communications transmission services and will also sell consulting services.

The division also hopes to resell voice capacity on Midland Group's private UK voice network if the government gives the bank the green light, according to Ogilvie.

Lagging in information technology

Finding better ways to leverage information technology is a high priority for Midland, according to several observers. The bank, which last year spent 72% of its revenue on operations, has higher operating costs than any of its largest competitors, according to William Vincent, a European bank analyst with Salomon Brothers International, the London subsidiary of the New York brokerage.

This stems, in part, from inefficient DP operations, some observers said.

"I think they're at least two years behind the competition," Nomura's Tyce said. "They haven't made the big investments [in information technology] that cut operating costs like their competitors did."

Tyce said Midland shied away from information system investments in the 1980s because of a slew of difficulties that focused resources and management attention elsewhere.

The bank posted pretax losses of more than $700 million in 1987 after setting aside $1.4 billion to cover losses on loans to developing countries. The bank also had difficulty managing its acquisition of San Francisco-based Crocker National Bank in 1981, Tyce said. Midland sold Crocker to Wells Fargo & Co. in 1986.

"They just didn't seem to have the resources or interest in investing in [information technology]," said Allan Reid, manager of an $86 million branch automation project at Glasgow Scotland-based Clydesdale Bank, PLC, which until 1987 was owned by Midland ("Bank seeks service edge through net investment," *NW*, March 13).

Salomon's Vincent said Midland's current initiatives, especially the effort to concentrate DP activities, may turn this around. "I see this as a double [bonus]," he said. "First you cut costs, second you free people to work well."

"We believe these efforts can help the profitability of the entire business," Ogilvie said.

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Microsoft, DCA open LAN Mgr.

continued from page 1

The product is positioned as an alternative to the SNA gateway IBM is scheduled to release for its OS/2 LAN Server by the middle of the year. Microsoft and DCA also announced a single-user configuration called Communications Workstation that will compete with the Communications Manager portion of IBM's stand-alone OS/2 Extended Edition product.

PHOTO ©1989 CINDY CHARLES

Microsoft's Adrian King

Much of the LU 6.2 and APPC expertise going into Comm Server is being supplied by Data Connection Ltd., a British company that specializes in SNA and Open Systems Interconnection software.

Data Connection is also developing a Unix version of the Comm Server that will support DOS, OS/2 and Unix clients.

Microsoft will license the Comm Server to its traditional base of hardware OEMs, and DCA will market it to users. DCA is offering the Comm Server in place of the Select Communications Server it announced in March 1988 and was scheduled to deliver last month.

The Comm Server incorporates the mail slots and security and network administration application programming interfaces in LAN Manager, as well as OS/2's Named Pipes interprocess communications facility.

Physically, the Comm Server can be brought into SNA via a 3X74 cluster controller, a token-ring, a Synchronous Data Link Control leased or switched circuit, or an X.25 packet-switched network. A single Comm Server can connect the local network to more than one host.

When multiple Comm Servers are used on one network, they automatically split up the gateway load among themselves.

The servers advertise their capabilities on the network, and workstations find the ones that offer the connections that are needed. This dynamic load-balancing feature provides automatic backup for LAN Manager networks that have more than one Comm Server.

The Comm Servers can be configured to generate the data-link and response-time alerts required by IBM's NetView so they can be brought under the control of centralized net management.

Thorlin said the Comm Server "puts the end user back into the MIS manager's fold. Now the MIS manager [can deliver] something the PC guy wants — the common corporate data base."

Adrian King, general manager of Microsoft's new work group services group, pointed out, however, that the Comm Server is just the "plumbing" developers can use to support applications that enable personal computer users to get at that data.

Eight third-party developers announced support for Comm Server last week, including five data base companies: Ashton-Tate Corp., Cullinet Software, Inc., DB/Access, Inc., Information Builders, Inc. and Micro Decisionware.

The remaining three are Netwise, Inc., Micro Tempus, Inc. and Consumers Software, Inc.

Microsoft and DCA said the Comm Server and Comm Workstation offer extensive compatibility with IBM's OS/2 Extended Edition. ◻

Drexel net exec discusses impact

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porate restructuring will have little impact on Drexel's current negotiations with the major long-distance carriers for an integrated voice and data network.

"The negotiations will continue," Higgins said. "The only difference is that the total network pie under discussion will be smaller."

Higgins said Drexel's hub-and-spoke data network will remain largely intact.

The company will drop tail circuits that connect the firm's retail branch offices to six hubs in major U.S. financial centers. The hubs, which are equipped with 3270 remote concentrators, are linked via 56K bit/sec leased lines to two IBM 3090 mainframes in the company's main data center here.

Network equipment at the branches will either be sold to the future buyer or brought back in-house, Higgins said. Each branch is equipped with Quotron Systems, Inc. stock-quotation terminals and IBM 3270 terminals used for data entry, he said.

Speed counts

The cutover of the branch offices should take about three months once a buyer is found, Higgins said.

"Once we know who the buyer is, we will establish a working procedure and assign multiple teams of engineers from both companies. We expect to be able to cut over several offices a week to the buyer's net," Higgins said.

According to Grody, speed and thorough planning are important if the cutover is to be successful.

"The process can be a nightmare of endless delays if companies don't have a blueprint down and aren't ready to go. The result is that both customers and brokers desert ship," Grody said. ◻

Calendar

May 1-2, San Jose, Calif. — IBM's Systems Application Architecture. Contact: Gen2 Ventures, Suite D-5, 12930 Saratoga Ave., Saratoga, Calif. 95070; (408) 446-2277.

May 1-2, Monterey, Calif. — Internet Requirements Seminar. Contact: Advanced Computing Environments, Suite 100, 480 San Antonio Road, Mountain View, Calif. 94040; . (415) 941-3399.

May 1-4, Chicago — Integrating Purchasing, Receiving and Accounts Payable Systems. Contact: American Management Association, P.O. Box 319, Saranac Lake, N.Y. 12983; (518) 891-0065.

May 1-4, Detroit — Society of Manufacturing Engineers (SME) 1989 International Conference. Contact: SME, 1 SME Drive, Dearborn, Mich. 48121; (313) 271-1500.

May 2-4, New York — SPEECH-TECH '89. Contact: Media Dimensions, Inc., 42 E. 23rd St., New York, N.Y. 10010; (212) 533-7481.

May 4-5, New York — Intelligent Building Wiring: Alternatives and Applications. Contact: Intelligent Building Institute Foundation, Suite 300, 2101 L St. N.W., Washington, D.C. 20037; (202) 457-1988.

May 5-7, Boston — AppleFest Conference & Exposition. Contact: Cambridge Marketing, Inc., 1 Forbes Road, Lexington, Mass. 02173; (617) 860-7100.

May 7-10, Dallas — Association for Systems Management's (ASM) 42nd Information Systems Conference. Contact: ASM, 24587 Bagley Road, Cleveland, Ohio 44138; (216) 243-6900.

May 8-10, Washington, D.C. — ECF89. Contact: Eastern Communications Forum, Suite 740, 303 E. Wacker Drive, Chicago, Ill. 60601; (312) 938-3500.

June 21-22, Chicago — Network Management Solutions. Contact: IDG Conference Management, 375 Cochituate Road, Framingham, Mass. 01701; (800) 225-4698, ext. 646; facsimile: (508) 872-8237.

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